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TRAINING TEACHERS TO IMPLEMENT SYSTEMATIC STRATEGIES IN PRESCHOOL CLASSROOMS WITH FIDELITY

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TRAINING TEACHERS TO IMPLEMENT SYSTEMATIC STRATEGIES IN
PRESCHOOL CLASSROOMS WITH FIDELITY

Dissertation

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Education
at the University of Kentucky

By

Rebecca V. Crawford

Lexington, Kentucky

Director: Dr. Jennifer Grisham-Brown, Professor of Education

Lexington, Kentucky

2018

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ABSTRACT OF THESIS

TRAINING TEACHERS TO IMPLEMENT SYSTEMATIC STRATEGIES IN PRESCHOOL CLASSROOMS WITH FIDELITY

This study examined the fidelity of implementation by four Head Start teachers using the teaching strategies of constant time delay, enhanced milieu teaching, and system of least prompts with children with and without disabilities in an inclusive early childhood setting. The teachers worked with the researcher to determine appropriate skills to target for each teaching strategy. A multiple probe across behaviors design replicated across four teachers was used to determine the effects of teachers' fidelity of implementation of evidence-based teaching strategies. The results showed that Head Start teachers could implement systematic teaching strategies with fidelity. The study also examined if children with and without disabilities can make progress towards their target skills. The results showed that children were able to make progress towards their target skills.

KEYWORDS: Professional Development, Coaching, Teachers, Constant Time Delay, Enhanced Milieu Teaching, System of Least Prompts

Rebecca V. Crawford

June 27, 2018

TRAINING TEACHERS TO IMPLEMENT SYSTEMATIC STRATEGIES IN
PRESCHOOL CLASSROOMS WITH FIDELITY

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DEDICATION

I dedicate this dissertation to my loving and patient husband, Alex. Thank you for always pushing me towards finishing the doctoral program and sharing the same dreams that I have. I love you, always and forever!

The best is yet to come...

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Chapter One: Introduction

According to the Head Start Program Performance Standards (2016), “...programs must provide high-quality early education and child development services, for children with disabilities, that promote children’s cognitive, social, and emotional growth for later success in school” (p. 25). In addition, Head Start programs must implement a research-based curriculum and use screening and assessment procedures that support individualization and growth in areas of development that align with the Head Start Early Learning Outcomes Framework: Birth to Five, and also support family engagement (Head Start Program, 2016). The curriculum that Head Start programs follow must meet the following criteria:

1. Based on scientifically valid research and have standardized training procedures and curriculum materials to support implementation.
2. Aligned with the Head Start Early Learning Outcomes Framework: Age Birth to Five.
3. Scope and sequence is organized and have plans and materials for learning experiences (Head Start Program, 2016).

One of the major goals of the Head Start Act is to promote school readiness of children with low-income by enhancing their cognitive, social, and emotional development in a learning environment that supports children’s growth in language, literacy, mathematics, science (Head Start Act, 2007). Getting Ready for Kindergarten: Children’s Progress During Head Start report, states however that “...all children completing Head Start, ... score below norm across developmental areas...at both Head Start entry and exit” (Aikens, Kopack Klein, Tarullo, & West, 2013, p. 8).

In order for Head Start teachers to improve children's school readiness, they need to embed learning opportunities within ongoing activities and use procedures to teach target behaviors (Snyder, Hemmeter, & Fox, 2015). However, teachers need effective training and coaching packages to ensure they are implementing the procedures with fidelity. According to Snyder, Hemmeter, & McLaughlin, 2011, "Training and coaching often are linked as forms of professional development (PD) to build and sustain the competence and confidence of practitioners to implement evidence-based practices as intended" (p. 133).

In order to address the needs for children in Head Start classrooms to improve school readiness, this project was designed to teach, coach, and support teachers to use three evidence-based teaching strategies to teach target skills to children. The systematic teaching strategies included constant time delay (CTD), enhanced milieu teaching (EMT), and system of least prompts (SLP; Collins, 2012). This project was designed to address the educational gaps between those served by Head Start (i.e., those from low income environments and those with disabilities) and their counterparts (i.e., those from higher social-economic backgrounds and those without disabilities). This project was designed to address concerns and limitations of coaching strategies as a form of PD. In addition, findings of this study added important information to the early childhood literature on fidelity of implementation of evidence-based practices by teachers not trained in special education. This project helped to improve teachers' ability to implement a systematic teaching strategy with a high level of fidelity resulting in better outcomes for young children.

Systematic Teaching Strategies

Systematic teaching strategies are evidence-based practices that be can used to address learning needs (i.e., barriers to learning, foundational or prerequisite skills or social skills) of children with and without disabilities (Grisham-Brown, & Hemmeter, 2017). The reason to use systematic teaching strategies is based on the individual needs of the children regardless of disability.

Systematic teaching strategies can be used with preschool aged children (e.g., Daugherty, Grisham-Brown, & Hemmeter, 2001) to high school students with and without disabilities (e.g., Baxter & Mims, 2016), in home-based setting (e.g., DiPipi-Hoy & Jitendra 2004), or school settings (e.g., Whalon, & Hart, 2011). Systematic teaching strategies can be used to teach play skills (e.g., Barton & Wolery, 2010), academic skills (e.g., Hardy & Hemmeter, 2014), adaptive skills (e.g., Field, 2014) and communication skills (e.g., Ahlgrim-Delzell et al., 2016).

Constant Time Delay (CTD). Constant time delay is an evidence-based and easy-to-implement strategy, that is effective for children with and without disabilities (Collins, 2012). Constant time delay reduces the number of errors a learner makes, thus ensuring that learners practice a high rate of correct responding (Pruitt & Cooper, 2008). The CTD strategy begins with a teacher selecting one controlling prompt to be used across all trials and sessions. A controlling prompt is the least intrusive prompt that can be used with a particular learner that is also motivating enough so that the learner will likely produce a correct response in most of the trials or sessions (Collins, 2012). An important aspect of the CTD procedure is the wait time between when the teacher asks the child to do something and when the teacher provides the prompt. The length of time is based on how long a child needs to respond to the task direction before guessing. When

a learner knows how to wait for a prompt, the time delay procedure is nearly errorless (Collins, 2012). There are two variations of time delay procedure: (a) progressive time delay, in which the wait time slowly increases and then naturally fades as the learner begins to perform the correct response; and (b) CTD, when a controlling prompt follows a wait time that is a set interval and naturally fades as learners begin to perform the correct response before the delivery of the controlling prompt (Neitzel & Wolery, 2009). Constant time delay should be embedded into learning opportunities where teachers can provide intensive, individualized, and intentional instruction (Grisham-Brown, Pretti-Frontczak, Hawkins, & Winchell, 2009).

Constant time delay has been used to effectively teach a wide range of skills including counting (Daughety, Grisham-Brown, & Hemmeter, 2001), choice making (Clark & McDonnell, 2008) prewriting skills (Grisham-Brown, Pretti-Frontczak, Ridgley, Litt, & Nielson, 2006; Grisham-Brown et al., 2009), and cause-effect (Grisham-Brown, Schuster, Hemmeter, & Collins, 2000). The procedure has been used to teach preschoolers (Daughety et al., 2001), kindergarteners (Clark & McDonnell, 2008) and school aged children (Kurt & Tekin-Iftar, 2008). Also, CTD has been used to teach children with a variety of disabilities including developmental delay (Aldemir & Gursel, 2014), visual impairments (Clark & McConnel, 2008), and autism spectrum disorder (ASD; Grisham-Brown et al., 2000). In addition, CTD has been beneficial to children who are typically developing (Alig-Cybriwsky, Wolery, & Gast, 1990; Grisham-Brown et al., 2006; Grisham-Brown et al., 2009).

Daughety et al. (2001) studied the use of CTD in embedded instruction to teach counting to three young children with speech and language delays. The children were

enrolled in a half-day inclusive preschool program, 5 days a week in a public elementary school. The children were asked to count objects during on-going classroom activities in which they were engaged. Additionally, non-target information was included in the task directions. For example, the researcher would say, “Count the red blocks.” During intervention, the researcher gave the children a task direction (e.g., “Give me three red blocks”) and then waited 0 to 3 seconds before delivering the controlling prompt of either a visual model or a verbal and visual model. Then, the researcher asked the child to model what she did. The trials ended with the researcher giving verbal praise or a pat on the back for correct responses, while incorrect responses were ignored. The researcher collected reliability data for the teachers having materials ready, warming up to the child, providing task directions, waiting the correct delay interval, prompting if necessary, providing the correct consequence, and reinforcing for attention. The number of average days for a child to reach criterion for each number was 5 to 6 days. Once the intervention was introduced, the correct responses quickly increased to criterion levels for all three of the children. This study found that CTD was effective in teaching numbers to the three children. The classroom teacher collected dependent and independent variable reliability data once during each probe condition and three times during interventions for all students. Fidelity of implementation and the dependent variable were 100% during all probe and training conditions.

Grisham-Brown et al. (2006) studied the effects of embedding learning opportunities on the acquisition of pre-writing skills in three preschool-age children of varying abilities. The teachers were taught how to embed CTD into developmentally appropriate activities across the school day (e.g., small group, dramatic play, centers). In

addition, the researchers worked with the teachers to develop individual intervention plans for each child to show how they could embed pre-writing opportunities throughout the day. Two of the children acquired their target skills, while the third child made progress over baseline performance. The researchers had three conclusions based on the results. First, embedding learning opportunities throughout daily activities may be an effective strategy for teaching preschoolers with varying abilities in inclusive settings. Second, embedded learning opportunities during daily activities may be a feasible way to address important pre-kindergarten standards. Finally, CTD was implemented with a high level of inter-rater and fidelity of implementation.

Botts, Losardo, Tillery, and Werts (2014) replicated a study that focused on the effectiveness of two different interventions, activity-based intervention and embedded direct instruction (CTD) on the acquisition of six phonological awareness skills of five preschool children with language delays within the contexts of their classroom. Some of these skills were producing alliterations, blending two syllable words, and producing rhyming words. The use of the CTD resulted in more effective acquisition of the target objectives. For example, during the first target skill, none of the children met the response criterion of 100% during the activity-based intervention however when the first target skill was implemented using CTD, three of the five children met the criterion level. The use of CTD was more effective and efficient for the acquisition of phonological awareness skills than activity-based intervention.

Fleming (1991) studied the effects of embedding CTD into circle times that were being conducted by preschool teachers in a Head Start classroom. The circle time activity consisted of the teacher and eight children; the author divided the class into sub-groups so

the teacher was then only paired with two target children. The author looked at the children's ability to identify letters using letter cards. The teacher would show the child a letter card and say, "What is this?". Then the teacher would follow the procedure of CTD with a 4s wait time. All children acquired their targeted letter identification on average 10.1 sessions (range 6-10). The results showed that CTD was implemented with fidelity into the circle time activity and that the children made progress.

Enhanced Milieu Teaching (EMT). Enhanced milieu teaching is a naturalistic communication intervention that has been shown to increase communication skills in young children with language delays (Olive et al., 2006). In EMT, the child's interests and initiations are used as opportunities to model and prompt language in everyday contexts. EMT "...blends developmentally appropriate responsive interaction strategies (contingent responsiveness, language modeling, expansions of child utterances) with behavioral teaching strategies to increase the frequency and complexity of language" (Kaiser & Roberts, 2013, p 296). There are four behavior strategies included in EMT, (1) arranging the environment to increase the likelihood that the child will communicate, (2) selecting and teaching specific language targets appropriate to the children's skill level; (3) responding to the child's initiations with prompts for elaborated language consistent with the child's targeted skill, and (4) functionally reinforcing the child's communicative attempts by providing access to requested objects (Kaiser and Roberts, 2013).

Enhanced milieu teaching is an evidence-based intervention with 20 years of research and is an effective intervention (Robert & Kaiser, 2012). EMT has been used to increase children's vocabulary (Kaiser & Robert, 2012), frequency of communication (Warren et al, 1994), and choice making (Clark & McDonnell, 2008). EMT can be used

with toddlers (Roberts & Kaiser, 2012), children with Down syndrome (Wright, Kaiser, Roberts & Reikowsky, 2012) and autism (Drasgow, 2007), and typically developing children (Clark & McDonnel, 2008).

Clark and McDonnel (2008) studied the effects of an intervention package that used visual accommodations, daily preference assessments, and naturalistic instructional strategies on the accuracy of choice-making responses for three children, aged three to six-years-old. The choice making took place during free choice and snack time. The teacher would provide one of the following prompts, “Show me what you want,” “What do you want?,” or “Touch what you want to play with [or eat]” (p 402). If the child made a choice, the teacher would provide verbal reinforcement along with the item [or food]. During the baseline sessions, the average correct responses by the children was 10.26% (range 8.3-12.5%). Once intervention was implemented, the children responded correctly at 62.6% (range 57-73%). The results indicate that using EMT as an intervention is effective in helping children develop choice making skills.

Drasgow (2007) examined the effects of teachers or teaching assistants implementing EMT procedures into 5-min play sessions four days a week for three children with autism. EMT procedure consisted of two components, (1) the teacher or assistant engaged in play with the children and used environmental arrangement to embed and increase opportunities for requesting, and (2) the teacher or assistant prompted the child to use a voice-output communication aid whenever they emitted a request with a gesture. If the child completed a correct response, the teacher or assistant reinforced the child with the requested object and a verbal expansion (e.g., “You want more books!”). During baseline spontaneous requests by the children were 0.6% (range 0-1.8%) and

during intervention improved to 20% (range 11.9-32.7%). The use of the voice-output communication aid by the children during baseline was 0% and during intervention was 10.2% (range 7.3=12.8%). These results indicate that EMT is an effective strategy to use with children with autism to request items.

System of Least Prompts (SLP). The procedure of SLP is a strategy where the instructor allows the learner to perform a behavior independently before the prompt is delivered and then prompts are provided in order from a hierarchy of intrusiveness, such as a verbal prompt, to more intrusive, for example a physical prompt. This is a good strategy to use for learners who do not require a more intrusive prompt (Collins, 2012).

The SLP procedures have a long history and a strong research base in teaching individuals with a variety of disabilities including mild and moderate intellectual disabilities (Manley, Collins, Stenhoff & Kleinert, 2008), autism (Cihak, Fahrenkrog, Ayres, & Smith, 2010), and multiple severe disabilities (Browder, Lee, & Mims, 2011). The SLP can be used with a variety of ages such as preschoolers (Barton & Wolery, 2010), elementary students (Manley et al., 2008), and young adults (Mechling, Gast, & Fields, 2008). Recently researchers have taught pretend play skills (Barton & Wolery, 2010), telephone skills (Manley et al., 2008), how to use an iPod (Cihak et al., 2010) and reading comprehension skills (Browder, Lee, & Mims, 2011) with SLP.

Filla, Wolery, and Anthony (1999) looked at the effects of two interventions (a) environment modifications, and (b) adult prompting using SLP to promote conversations between nine preschoolers with and without disabilities. The study took place within two public preschool classrooms and happened during free play when themed boxes would be introduced to the children. When using environment modification, the children would

select a theme box to play with another child. The teacher interacted with the children as she would usually. When the intervention of adult prompting was used, the teacher was instructed to conduct the SLP using this order: the teacher gave a general prompt to both children, then a direct prompt to one child, and finally a model to one child. The results showed that using environmental modification only was not enough to increase the rate of conversations and the number of turns per conversation. However, when SLP was introduced there was an increase in the rate of conversations and the number of turns per conversation. The researchers concluded that further research should be done with the SLP and procedures that use a single prompt.

Lifter, Ellis, Cannon, and Anderson (2005) designed specific play programs for three children, between the ages of four and six, with developmental disorders who were being served in home-based programs. For each of the three children, there was individualized play programs created that included target instruction and three different toy sets were used. Two teachers who worked with the children were trained in using SLP when following the child's lead. When children attended to a target object and attempted the target activity, the teacher would follow the SLP hierarchy of verbal, gesture, model and then physical prompt to help support the child in completing the activity. The results indicated that the children could complete the target activities when taught with SLP on acquisition of 85% (range 75-100%) of 40 play activities (Lifter et al.).

Professional Development

Based on the need of high quality child care for all children, the current study examined the PD package of training and coaching on teachers' ability to implement

systematic teaching strategies with a high level of fidelity in inclusive classrooms with children with and without disabilities. In this section, different types of professional developments are covered. As well as, information about coaching.

Types of professional development. Early childhood educators need to have the ability to understand child development, as well as the skills and practices to help young children learn. Currently, there are no consistent standards or requirements for professional preparation of early childhood educators, thus making it difficult to provide the proper training to meet the educators' needs (Zaslow, Tout, Halle, Whittaker, & Lavelle, 2011).

Traditionally, there are five forms of PD for early childhood educators: (1) formal education; (2) credentialing; (3) specialized, on the job inservice training; (4) communities of practice or collegial study groups; and (5) coaching and/or consultative interactions (Sheridan, Edwards, Marvin, & Knoche, 2009). Formal education refers to a degree earned prior to employment for an individual. According to the Head Start Staff Qualifications and Competency Requirements (n.d.), "... programs must ensure all center-based teachers have at least an associate's or bachelor's degree in child development or early childhood education, equivalent coursework..." (par 8) in order to be employed by Head Start. A second form of PD for early childhood educators is credentialing. In early childhood, most often teachers would earn a Child Development Associate, CDA, certificate. The Council for Professional Recognition (Credentials, 2017), states that "the CDA credentialing program assesses candidates using multiple sources evidence, including an exam, observation and professional portfolio with resources and competency statements prepared by the candidate (par 2)". While these first two forms fall under PD,

the focus of this study was on the common PD associated with individuals who are currently employed.

Specialized on the job in service training is composed of activities (i.e., workshops, conferences, presentations) specific to early childhood programs and provide specific skill instruction or skill-building content for on-the-job applications (Sheridan, et al., 2009). Specialized on-the-job inservice training tends to be shorter in duration and offer fewer, or no, opportunities for repeated contact with instructors. These factors make specialized on -the- job inservice training not as effective in training educators in new skills (Donovan, Bransford, & Pellegrino 1999; Raikes, et al., 2006; Whitehurst, et al., 1994).

Communities of practice or collegial study groups are groups of individuals who share similar interests for what they are doing and they work together to improvement upon those interests (Wenger, McDermott, & Snyder, 2002). A key to communities of practice is having an expert facilitator who has relevant experience and practical wisdom and can help the group ask questions, comment and build ideas, expand key points, provide history and useful resources and stay on task. Communities of practice focus on issues, problems or successes that emerge from authentic situations in their work. While communities of practice are effective in building strong staff collaboration, more research is needed in examining application and outcomes of the communities (Sheridan et al., 2009).

Coaching. PD activities need to (a) be learner-centered, (b) address important content knowledge, (c) provide individuals with opportunities to test their understanding by trying things and receiving feedback, and (d) occur within a collaborative environment

(Zaslow et al., 2011). In addition, the PD should have opportunities for coaching (Sheridan et al., 2009). Coaching can include a variety of practices; typically it includes performance based feedback and self-reflection (Ledford, Zimmerman, Harbin, & Ward, 2017). Recently research has focused on adult learning and what elements are needed for PD to be effective for improving teacher-related outcomes (A Summary of Professional Development Research, 2014). Research suggests coaching experiences have positive and lasting effects on teachers' instructional practice (DeMonte, 2013). Guskey and Yoon (2009) found that isolated PD training with no follow up services are less effective than PD coupled with some type of follow up.

One of the benefits of observer coaching and feedback is that it enables the teacher implementing the new strategy to better understand how the new strategy effects student behavior (Guskey, 2002). Coaching is likely to be effective if the teachers get to observe instruction and then talk about the observation with a coach (DeMonte, 2013). Other benefits of coaching include developing a shared language between co-workers, building a sense of community, and providing a PD community (Webster-Stratton & Reid, 2004).

Coaching can be face-to-face or virtual. Face-to-face coaching consists of classroom observations followed by written or oral feedback (Sparks, 1983; Sparks & Loucks-Horsley, 1989). For example, Rudd, Lambert, Satterwhite, and Smither (2009) studied the effects of a two-hour workshop followed by classroom coaching of 12 early childhood educators who were attempting to increase math-mediated language with preschool children. The authors found an increase of 56% in the math-mediated language of the early childhood educators following the two-hour workshop. However, the greatest

increase came after the teachers received coaching instruction. The early childhood educators increased their math-mediated language by 95% (Rudd et al., 2009).

In contrast to face-to-face coaching, virtual coaching involves using online and mobile technology to allow a coach, who might be located elsewhere, to observe a teacher and offer feedback through an earpiece that a teacher (Rock, Zigmond, Gregg, & Gable, 2011). One important feature of virtual coaching is that it allows for immediate feedback to the teacher, which may lead to better instructional decisions. Other benefits of virtual coaching include savings in time, money, and travel (Rock et al.????). Virtual coaching is possible anywhere as long as there is internet access.

Although face-to-face and virtual coaching methods have been shown effective in providing PD (Joyce & Showers, 1980; Showers, 1985; Webster-Stratton & Reid, 2004), there are three concerns related to coaching early childhood providers. First, there are typically insufficient personnel to support all of the teachers in need of coaching (Israel, Carnahan, Snyder, & Williamson, 2012). Second, the amount of time spent coaching teachers can vary substantially. According to Garet et al. (2008), the range of coaching received by teachers ranged from 1.2 hours to 173 hours over the course of a school year. The study stated “Nine percent of teachers received less than 20 hours; 18 percent received from 20 to 39 hours; 33 percent received from 40 to 59 hours; 17 percent received from 60 to 79 hours; 8 percent received from 80 to 99 hours; and 15 percent received more than 100 hours” (Garet et al., p. 70). Finally, the coaches’ knowledge level may not be significantly different than the knowledge of the teachers they are coaching (Garet et al.).

A final but important issue with coaching is the lack of understanding about what behaviors should comprise coaching and how it should look in actual practice (Jayaraman, Marvin, Knoche, & Bainter, 2015). Thus far, the lack of research on coaching in early education is limited with regard to the most effective coaching strategies (e.g., face-to-face, virtual; Jayaraman et al., 2015).

Fidelity of Implementation

It is important to measure fidelity of implementation in order to evaluate the accountability of the teacher to produce a desired effect, in addition to effectiveness of the intervention on child outcomes. Teachers must make data-based decisions to plan and implement activities to better meet the needs of individual children (Grisham-Brown et al., 2000; Hojnoski, Gischlar, & Missall, 2009).

Constant time delay. Constant time delay can be implemented with fidelity, with acceptable levels of fidelity being over 80% and over 90% being preferred (Ledford & Gast, 2013). Spino (2013) compared the effects of once-a-week, CTD instructional schedule to a three-times-a week CTD instructional schedule used by early childhood special education teachers to teach four preschoolers to identify items. During the once-a-week session, procedural fidelity was 98.6% (range 96.0 – 100%) and during the three-times-a-week sessions it was 99.3% (range 98.0 – 99.9%).

Wolery et al., (1992) reported that CTD was implemented with a high degree of fidelity ($m = 98.0\%$). In addition, when CTD was implemented by someone other than the researcher (i.e., teachers), the procedural reliability remained high. The teachers' implementation of fidelity ranged from 94% to 100% (Wolery et al.).

In addition, research has been conducted on paraprofessionals implementing CTD during intervention. Their average fidelity of implementation was 95% and a range of 88%-97% (Grisham-Brown et al., 2000). Also, Jameson, McDonnell, Polychronis, & Riesen, (2008) examined the ability of middle school peer tutors to implement CTD. Their reports of fidelity of implementations was 97% (range of 97% to 100%). Lastly, DiPipi-Hoy and Jitendra (2004) studied parents' ability to implement CTD with fidelity; the average fidelity was 98% and a range of 87% to 100%.

Enhanced Milieu Teaching. Wright and Kaiser (2016) studied the effects of parent implemented EMT on young children with Down syndrome with teaching words and signs. EMT was implemented with a high level of fidelity averaging 90% (range 71%-100%). In addition this study shows that systematic teaching and coaching can be effective in improving parents' use of naturalist communication strategies.

Kaiser, Schere, Frey, and Roberts (2017) examined the effects of EMT to improved the language and speech outcomes of 19 toddlers with cleft lips or palates by trained speech language pathologists. The children were randomly assigned to treatment and business-as-usual groups. The children received forty-eight 30-min sessions during a 6-month period. The children in the treatment group has significantly better receptive language scores and made greater gains on most language measures. The speech language pathologists implemented EMT with a high level of fidelity of 75% or more (Kaiser et al).

System of Least Prompts. Barton (2015) examined the effects of teachers implementation SLP on the acquisition of pretend play and related behaviors by four children with disabilities. The results showed that the teachers' use of SLP helped to

increase the children's frequencies of pretend play. Also the results indicated that teacher could implement SLP with a high level of fidelity at 93.5% (range-91%-95%).

Barton and Wolery (2010) studied the relationship between teacher's use of SLP to the acquisition of pretend play for four children. During the trials, the teacher contingently imitated the child and then applied the SLP to target the four types of behaviors: (a) functional play with pretense, (b) object substitution, (c) imagining absent objects, and (d) assigning absent attributes. The SLP consisted of three to four levels depending on the child's response. The hierarchy of prompts was (a) independent, (b) verbal, (c) model, and (d) full physical hand over hand. The data suggested that the teachers' used the intervention package with high fidelity, 93.9% (range 82%-100%), despite having a complex intervention system to learn. The use of this intervention package was functionally related to an increase in the children's frequency of pretense behaviors, which represents a nonliteral action of one or more objects; for example, child puts spoon to doll's mouth.

Research Questions

In response to the Head Start Early Learning Outcomes Framework: Ages Birth to Five, this project contributed to Head Start practices by exploring a PD training package to enhance the current curricula. The purpose of this project was to expand the research base by examining the effects of the PD training package with Head Start teachers using CTD, EMT, and SLP to help improve children's school readiness. There were two research questions for this study:

Primary Question: With training and coaching, can teachers implement systematic teaching strategies (constant time delay, enhanced milieu teaching, and system of least prompts) with 90% accuracy for 3 consecutive sessions?

Secondary Question: Can young children with and without disabilities make progress on new skills when teachers implement procedures of constant time delay, enhanced milieu teaching, and system of least prompts?

Terms

1. Coaching: A face-to-face conversation between the researcher and teacher following fidelity of implementation checks that are related to the implementation of CTD.

Significance and Implications of the Research

This project has two purposes. Each of those purposes is explained below and how it has implication for research.

Purpose One. This project examined a professional development package and determined the effectiveness of the package. Traditionally, PD alone is how teachers are trained in new strategies. However, this is less effective than using PD plus coaching (Guskey & Yoon, 2009). Coaching will give teachers the ability to implement the new strategy they are learning and receive feedback on their fidelity of implementation. According to Leach and Conto (1999) teachers who have coaching experiences have more lasting, positive effects than teachers who did not receive this feedback. Teachers who receive PD only displayed fewer changes in behavior and the changes only lasted briefly.

Purpose One has implications for policymakers and program administrators because we are able to see if the PD package is effective. This will help with future planning of teacher trainings and PD s.

Purpose Two. The project will study the impact of teachers' implementation of CTD, EMT, and SLP on children's progress in their target skill. The children entering Head Start are either at-risk or have a diagnosed disability. Children from low-income families typically enter school with lower levels of foundational skills in language, reading, and mathematics than their same-age peers (Barbarin et al., 2006.) This project addresses some of those skills.

Purpose Two has implications for policymakers, program administrators and early childhood education. This project shows systematic teaching strategies that are easy to implement and will often result in learners reaching criterion in a short period of time or a shorter number of instructional sessions (Collins, 2012). These strategies are effective and feasible to implement in preschool settings; policymakers and program administrators will benefit from knowing about systematic teaching strategies that are effective, feasible, require little to no extra materials. Early childhood educators will find this beneficial because they will know of another 'tool' they can use when their children are struggling with letter identification.

Chapter Two: Methodology

Method

Participants. The participants for this project included Head Start teachers and children in their classroom. Four teacher-child dyads participated in the study.

Teachers. Four lead Head Start teachers participated in this study. The teachers were chosen to participate in the study by the local Head Start agency. Table 2.1 show the demographic information for the participating teachers. Teachers were given consent forms by the researcher, see Appendix A: Consent to Participant in a Research Study for Teachers.

Table 2.1

<i>Demographic Statistics for Participating Teachers (N =4)</i>		
Demographic	<i>f</i>	%
Gender		
Female	4	100
Race/Ethnicity		
Black	3	75
Other	1	25
Degree		
Bachelors	4	100
Years Experience with Children Three to Five Years Old		
6 to 9 years	1	25
10 to 13 years	2	50
14 to 17 years	1	25

Children. Four children participated in this study. The children were enrolled in public preschool classroom through Head Start provided by a local Head Start agency. The children were chosen to participate in the study by their classroom teachers' based on their individual needs. Table 2.2 shows the demographic information for the participating children. Teachers picked children to participate in the study based on their

individual needs. Parents were given consent forms, see Appendix B: Consent to Participant in a Research Study for Children.

Table 2.2

<i>Demographic Statistics for Participating Children (N =4)</i>		
Demographic	<i>f</i>	%
Gender		
Female	2	50
Male	2	50
Ages (in months)		
37 – 48	3	75
49 – 60	1	25
Race/Ethnicity		
White	1	25
Black	2	50
Latino	1	25
Special Education Services		
Yes	1	25
No	3	75

Researcher. The researcher served as the trainer and coach for this study. The researcher graduated from the University of Kentucky in 2011 with a bachelor’s degree in Interdisciplinary Early Childhood Education and a master’s degree in Interdisciplinary Early Childhood Education in 2014. She had seven years of experience working as a preschool teacher, including three of those years as a public preschool teacher. The researcher was working towards her Ph.D. in interdisciplinary early childhood education.

Reliability data collector. One reliability data collector was used for this study. The reliability data collected was the researcher’s dissertation committee chair. She earned her Ed.D. from the University of Kentucky in Special Education. She helped collect fidelity of implementation and interobserver reliability data during baseline and

intervention phases, and procedural fidelity of the training sessions and coaching sessions.

Setting. All sessions, except for the trainings, were conducted in the teacher's classroom at the Head Start center, which was chosen by the local Head Start agency. These sessions were conducted during the morning part of the day, which consisted of: drop-off, snack, circle time and free choice. This Head Start center was opened in 2001 and they are a three STAR center. The center has three different programs: Head Start, Early Head Start and Migrant Head Start. There are four Head Start classrooms and currently enrollment is 80 children. All classrooms have a diverse population of children, with different races, cultures, languages, and disabilities. All of the children attend preschool in a Head Start classroom for 5 hours per day, 4 days per week. As of 2016, the local Head Start agency was serving 1,148 children in their Head Start classrooms (Head Start Annual, 2016). The children are between the ages of 3 and 5 years old. The percentage of children in Head Start who have a disability is 18%, and 100% of the children are considered at-risk (Head Start Annual, 2016). In this particular Head Start center, there are nine children with Individualized Education Plans (IEP) and all children enrolled in Head Start meet the federal poverty guidelines for low income.

The trainings occurred in the office of the director of the Head Start center. A teacher, researcher, and reliability data collector were present for trainings and sat at a circular table. A trainer-created PowerPoint presentation was shown on a laptop computer, and hand-outs about the systematic teaching strategy were presented to the teacher at each training.

Materials. The materials varied across children and activities. However, all materials and activities were provided daily to the children and in their natural environment. Some examples of materials and activities that were available to the children were puzzles, markers and paper, blocks, cars, trains, dramatic play clothes, stuffed animals, and measuring utensils. Examples of activities that were in the classrooms: using tweezers to transport pom poms from one container to another, manipulating sand and water with measuring cups and spoons, and using scissors to cut paper.

The teachers were trained using researcher-made videotapes that were made specifically for this project by the researcher. These videotapes were filmed in the researcher's own classroom. The researcher obtained consent from parents to videotape their child and ensured parents that the videotapes were for training purposes only, and would only be used during the researcher's dissertation study. These videotapes were filmed in a preschool classroom of children between the ages 3 and 5 years old. The videotapes used activities and materials that are available in the classroom daily (e.g., puzzles, foam or magnetic letters, letter beads, books). The videotapes ranged from 30 s to 5 min.

Target Skill Selection. The teacher and researcher met prior to the beginning of the study to identify target skills for each target child (i.e., academic, social, communication, self-help). After skills were identified, the researcher paired each identified target skills with the appropriate systematic teaching strategy. Table 2.3 shows the target skills identified by each teacher and the systematic teaching strategy paired with it.

Table 2.3

<i>Target Skill Selection by Teacher and Condition</i>			
Teacher	Target Skill		
	CTD	EMT	SLP
Katherine	Identifying colors	Making choices	Dressing
Mary	Prewriting	Play initiation	Following one-step directions
Sally	Identifying letters	Responding to questions	Dressing
Tracey	Counting	Requesting	Following one-step directions

Research Design

A multiple probe across behaviors design replicated across four teachers (Gast & Ledford, 2010) was used to determine the effects of the teachers' fidelity of implementation of evidence-based strategies.

Each participant participated in three phases for each of the three strategies: (a) baseline, (b) intervention, and (c) maintenance and generalization phase. Data were collected during each of these phases. Table 2.4 shows the order of teacher intervention phases.

Table 2.4

<i>Teacher Assignment to Systematic Teaching Strategies</i>			
Teacher 1	Teacher 2	Teacher 3	Teachers 4
CTD	SLP	EMT	CTD
SLP	EMT	CTD	EMT
EMT	CTD	SLP	SLP

Note. CTD = Constant time delay; SLP = System of least prompts; EMT = Enhanced milieu teaching.

Procedures. Four teachers were trained on three teaching strategies: CTD, EMT, and SLP. Each of the teaching strategies focused on a specific target skill that the researcher and teacher determined together before baseline phase.

Data will be collected during (a) baseline, (b) intervention, (c) maintenance, and (d) generalization.

The independent variables in this study were the teacher trainings and coaching sessions of the specific teaching strategies. The dependent variable was the accuracy with which the teacher implemented the three teaching strategies. A secondary dependent variable was the children's progress on their target skills.

Baseline. Five baseline probes occurred. During the baseline probes, the researcher collected data on the teachers' ability to implement the teaching strategies. On demand the researcher asked the teachers to implement one of the teaching strategies (CTD, EMT, & SLP) with the target child on their target skill. For example, the researcher would walk into the classroom and say, "Mary, can you please implement CTD with Mary? You are working on prewriting skills." The teacher would then join the target child in their play or set up a situation to implement their teaching strategy. Then the researcher would watch the teacher and see what steps, if any, the teacher could correctly implement of the teacher strategy. The researcher used the Coaching Notes and Feedback Form (Appendix C, D, and E) to place a checkmark next to each step of the teaching strategy the teachers implemented accurately.

The researcher collected data on whether the child demonstrated a correct response during each baseline trial. The responses were recorded with a + sign indicating that the response was correct, the – sign indicating the response was incorrect and the 0 indicating no response for before and after prompt for CTD and EMT and independent (I), verbal (V) model (M), physical (P) and no response (0) for SLP

Training sessions. Training occurred after five consecutive baseline sessions were conducted for the first tier, and when three baseline probes were conducted prior to the second and third tiers. The trainings occurred during the morning and took place in the director's office. The trainings lasted an average of 31.54 min (range 25-40 min). The teachers were trained separately, which allowed for individualization for each teacher. The training sessions followed the Outline for Training forms found in Appendix F. These forms were developed by the researcher. The teachers and researcher were asked to check off each item as it was discussed during the training session. These forms served as documentation of fidelity of training implementation.

During training the researcher explained the purpose of the study and how the intervention would fit into their existing classroom activities. The researcher explained the systematic teaching strategies of CTD, EMT, and SLP. During this time, an outline of each procedure was distributed to the teacher. The researcher asked the teacher to role play implementing the procedure with the researcher. During that time, the researcher collected fidelity of implementation on the role-playing and then provided feedback to the teacher. The training occurred until each teacher could implement the teaching strategies at 100% accuracy.

Next, the researcher showed videos of the teaching strategy, along with blank intervention plans that explained the steps of each procedure. After watching the videos, and discussing the strategy the researcher and teacher worked together to fill out an intervention plan, see Appendix G. The intervention plan served as a guide to help the teacher implement the strategy. Next, the researcher shared an Ideas for Implementing Strategy form, see Appendix H. The researcher and teacher worked together to fill out the

form, which provided the teacher with more ideas of activities to use to implement the teaching strategy. The final step of the training consisted of the researcher explaining how the coaching sessions would take place.

Before the second and third trainings, teachers completed Likert-scale Teacher's Satisfaction Surveys (see Appendix I) on the systematic teaching strategy that they just previously mastered. The survey contained five questions. Following the teachers mastering their final systematic teaching strategy, the teachers completed a Likert-scale Teacher's Satisfaction Survey- End of Project, see Appendix J, for the whole study. This survey contained nine questions. The rate of response on both surveys was 100%.

Modifications. There were two modifications to the trainings. The first modification took place after the first training session. It was decided by the researcher and chair to remove the requirement for teacher participants to collect data during intervention. To keep all training sessions, the same, teachers were still taught how to collect data. Some teachers decided to collect data during intervention, after the session took place, however it was not required. The second modification took place during the third training session. Teachers were given an additional sheet, Ideas for Implementing Strategy, Appendix H, to use to help them develop ideas on when and how to implement the strategy and target skill they were working on for that tier.

Intervention. The teachers used the teaching strategy to teach the target skill for each child. Each week a probe of the other two strategies not currently in the intervention phase took place. This helped to account for maturation from both the teacher and the target child. Mastery of the teaching strategy was determined based on the teachers correctly implementing the teaching strategy at 90% for three consecutive sessions and

the child making improvements on their target skill, at least 50% over baseline. The researcher or reliability data collector collected fidelity of implementation and interobserver agreement during these three sessions.

The study was counterbalanced by randomly assigning teachers to systematic teaching strategies. Table 2.4 the order of teacher intervention phases.

Table 2.4
Teacher Assignment to Systematic Teaching Strategies

Teacher 1	Teacher 2	Teacher 3	Teachers 4
CTD	SLP	EMT	CTD
SLP	EMT	CTD	EMT
EMT	CTD	SLP	SLP

Note. CTD = Constant time delay; EMT = Enhanced milieu teaching; SLP = System of least prompts.

The steps for time delay procedures were (Collins, 2012):

1. Get the attention of the learner.
2. Deliver the task direction:
3. Wait 0/3 seconds for the learner to respond.
4. Deliver the controlling prompt.
5. Praise correct response or repeat the prompt for incorrect responses or failures to response.

The steps for EMT were (Collins, 2012):

1. When child shows interest in something in the environment, teacher establishes joint attention.
2. Teacher gives the verbal “mand” or asks a question.
3. Wait a defined number of seconds (e.g.,3 seconds) for the child to provide the target response.
4. Give the child access to what he/she makes request.

5. If the child fails to respond or the response is incorrect, model the response for the child.
6. Wait a defined number of seconds (e.g., 3 seconds) for the child to imitate the target response.
7. Reinforce the child when target response is made.

The steps for SLP procedure were (Collins, 2012):

1. Secure the learner's attention.
2. Deliver the task direction.
3. Wait for 3 s for the learned to respond independently.
4. If the learner responds correctly, give praise; if there is not a response or an error, give the least intrusive prompt in the hierarchy, verbal and gesture, and again wait 3 s for a response.
5. If the learner responds correctly, give praise; if there is not a response or an error, give the least intrusive prompt in the hierarchy, physical, and again wait 3 s for a response.
6. Praise the correct response before going to the next trial.

During Intervention, the researcher collected the child's target behavior responses during their trials. For the procedures of time delay and EMT, the responses collected were +, correct; -, incorrect; and 0, no response, before and after the prompt and for SLP the responses were independent (I), verbal (V) model (M), physical (P) and no response (0).

Modification. Due to time constraints, during the final tier of intervention, teachers implemented the intervention for five sessions. During the previous two tiers,

teachers implemented intervention for a minimum of three sessions and then had at least two maintenance sessions.

Coaching. During the intervention phase of the study, the researcher coached the teacher following the fidelity of implementation checks. The coaching involved, but was not limited to, discussion of how implementation of the target behavior was progressing, observation of the strategy implementation, review of the fidelity of implementation data sheets, positive examples of how the target skill was implemented, and suggestions on how to improve on implementation of the teaching strategy. The areas of improvement were recorded on the Coaching Notes and Feedback Form located in Appendix C, D, and E (i.e., there is a form for each systematic teaching strategy). The teachers filled out a coaching protocol sheet, located in Appendix K to check for fidelity of implementation by the researcher. In addition, the reliability data collector collected fidelity of implementation on one third of the coaching sessions.

The average coaching session lasted 5 min (range 2 – 6.5 min). The total amount of coaching a teacher received per condition was 15 min to 25min. Over all three tiers, the teachers received an average of 3.9 (range 3-5) coaching sessions and a total of 19.5 min (range 15-25 min) of coaching

Maintenance

Once a teacher had moved onto the next teaching strategy, maintenance data were collected once per week. The teacher was asked to implement the teaching strategy and the researcher used a checklist to determine the accuracy with which they were implementing the strategy. In addition, the researcher collected data on the child's correct responses.

Generalization

Once a teacher had moved onto the next teaching strategy, generalization data were collected once. The teacher was asked to implement the teaching strategy in the same classroom but with a different child and a different target skill.

Social Validity

Teachers completed a Likert-scale questionnaire on the social validity of the study following mastery of each teaching strategy and the conclusion of the study.

Teaching Strategy Questionnaire. The scales ranged from 1-5, with higher scores indicating greater evidence of social validity. Questionnaires contained 5 questions, with questions assessing the belief to which teacher thought that their target child made progress, if they would try other strategies, how easy the strategy was to implement, if they would use the strategy in the future and if they would teach others about the strategy. Each rating scale was completed by a teaching following mastery of a systematic teaching strategy and before the teacher was trained on the next strategy.

End of the Study Questionnaire. The scales from 1-5, with higher scores indicating a greater evidence of social validity. Questionnaires contained 9 questions, with questions assessing how effective parts of the study were (i.e., training sessions, videos examples during training, writing intervention plans during trainings, coaching sessions, and feedback given during coaching sessions), how knowledgeable the researcher was, how comfortable the teacher was with the researcher, if teachers will continue to use information taught in study, and if they would take part in the study again. Rating scale was completed by a teacher following mastery of their last systematic teaching strategy.

Fidelity of Implementation and Interobserver Agreement

The researcher collected fidelity of implementation by observing three trials of the systematic teaching strategy. The researcher checked to see if the teachers were implementing the teaching strategy accurately four times per week. Once a week, the researcher and reliability data collector collected fidelity of implementation data together. The researcher and reliability data collector used a checklist for the steps of each strategy and would check off each step that was implemented by the teacher. The formula used to determine the percentage of steps being conducted correctly was: number of steps performed correct divided by number of total steps (Billingsley, White, & Munson, 1980). In addition to watching the teachers, the researcher and reliability data collector observed the children's response to the intervention.

A reliability observer collected procedural fidelity (PF) data on teacher behaviors for 11.26% of all sessions (1.4% of baseline sessions; 18.18% of training sessions; 24.61% of intervention sessions; 12.11% of maintenance sessions, and 0% of generalizations.) Table 2.5 shows the percent of PF collected per participant and conditions

Table 2.5

<i>Percentage of PF Collected by Participant and Condition</i>				
Condition	Katherine	Mary	Sally	Tracey
CTD				
Baseline	0%	0%	7.1%	0%
Training	100%	0%	0%	0%
Intervention	33.3%	66.6%	20%	33.3%
Maintenance	0%	0%	0%	0%
Generalization	0%	0%	0%	0%
EMT				
Baseline	0%	0%	0%	0%
Training	0%	0%	0%	0%
Intervention	0%	0%	33.3%	40%
Maintenance	0%	100%	0%	0%
Generalization	0%	0%	0%	0%
SLP				
Baseline	8.3%	0%	0%	N/A
Training	0%	100%	0%	N/A
Intervention	20%	0%	25%	N/A
Maintenance	0%	33.3%	0%	N/A
Generalization	0%	0%	0%	N/A
Total PF for all sessions	11%	20%	6%	7%

Interobserver agreement data were not collected during most baseline sessions, Katherine's EMT session, Mary's EMT and SLP intervention sessions, and generalization sessions. Point-by-point agreement was calculated to determine PF for the implementation of Katherine's CTD (M=100%), and SLP (M=100%) procedures, Mary's CTD (M=100%) procedure, Sally's CTD (M=100%), EMT (M=100%), and SLP (M=98.1%) procedures, and Tracey's CTD (M=95.8%) and EMT (M=93.75%, 87.5%-100%) procedures.

Implementation fidelity (i.e., implementation of the training and coaching) was collected by the teacher participants through report after each session, as well as a second observer during 27.47% of sessions. Three errors were recorded: 1) during one of

Tracey's coaching session the trainer did not ask the teacher her thoughts on how implementing the target behavior was going; 2) during one of Mary's training sessions the trainer did not show her examples of completed intervention plans; and 3) during one of Katherine's training sessions the trainer did not go over data on each video example shown. A reliability observer performed implementation fidelity checks during all sessions in which PF data were collected. Point-by-point method was used to calculate agreement. Agreement was 98.14% across all sessions. In addition, implementation fidelity data were collected during two trainings, one for Mary and one for Katherine. The trainer's implementation fidelity was 95% for both trainings.

Chapter Three: Results

Results for the teachers' implementation of systematic instructional strategies are presented here and in Figures 3.1 to 3.4. As well, results for children's acquisition of target behaviors are presented, along with Figures 3.1 to 3.4. Results are presented by dyads. The results were visually analyzed, with consideration of level, trend, stability, overlap, immediacy of effect, and consistency of effect (Lane & Gast, 2014; What Works Clearinghouse, 2014). Please note that for all figures for child's data in CTD, the data points that are graphed are for after the prompt.

Dyad 1

Teacher Behavior: Mary Figure 3.1 displays Mary's fidelity of implementation for each systematic teaching strategy.

Constant time delay. Mary implemented CTD first to teach prewriting skills to Katie. Mary had a stable trend observed for each tier. During baseline, she correctly implemented 50% of the steps of the intervention. After a stable baseline was achieved, Mary was trained in CTD. Mary displayed an immediate, positive improvement in her implementation of CTD following the training. It took Mary three days to reach criterion on implementing the steps of CTD. She correctly implemented 98.86% (range-96.6%-100%) of steps correctly. Mary completed four maintenance sessions throughout the rest of the study; consistency and stability was observed throughout maintenance and she correctly implemented 100% of steps. Following mastery of CTD, Mary completed one generalization probe with another child in the classroom; the skills focused on was identifying shapes. Mary implemented the procedure at 100% of the step correctly.

System of least prompts. System of least prompts was the second strategy that Mary implemented to teach Katie following one-step directions. There was a little instability during baseline so an additional baseline probe was conducted to look for stability and level. During the baseline sessions, Mary correctly implemented 27.7% (range 10%-30%) of the steps. Once baseline data were stable, Mary was trained to use SLP. Again, Mary had an immediate, positive improvement in her implementation of SLP following the training. It took Mary three sessions to reach criterion; she correctly implemented 100% of the steps of SLP. Mary completed three maintenance sessions throughout the rest of the study; she implemented SLP at 100% of the steps correctly. Mary completed one generalization session of SLP after mastery. She used SLP to teach making choice to another child and correctly implemented the procedure at 100%. Throughout intervention and maintenance, Mary maintained stability with implementation of SLP at a high level of 100%.

Enhanced milieu teaching. Enhanced milieu teaching was the last strategy learned to teach Katie initiation play with peers. There was a little variability during Mary's baseline sessions of EMT. She correctly implemented 38.16% (range 31.5%-46.87%) of the steps. Once a stable baseline was observed Mary was trained on EMT. As with the other two strategies, Mary had an immediate, positive improvement in her implementation of EMT following the training. It took three sessions to reach criterion, correctly implementing 100% steps. Mary completed one maintenance session throughout the rest of the study; she correctly implemented EMT 100% of the steps correctly. Mary completed one generalization session of EMT after mastery. She used

EMT to teach responding to questions to someone other than Katie and correctly implemented the procedure at 100%.

Child: Katie Figure 3.1 displays Katie's mastery of her target skills for each systematic teaching strategy. She learned prewriting skills with CTD, initiating play with EMT, and following one-step directions with SLP.

Constant time delay. During three baseline sessions of CTD, Katie was consistently writing none of the letters correctly. A stable baseline of 0% correct response was observed. Once intervention was introduced, a strong, positive effect was observed; CTD was initially implemented with a 0s delay interval for one session. During this session Katie correctly wrote 100% of the letters following the prompt. Following the 0s delay, the delay interval was increased to 3s. During the 3s delay interval, Katie correctly wrote an average of 69% (range 66.6%-71.4%) of the letters following the prompt. Following intervention, there were four maintenance checks. During the maintenance checks, Katie correctly wrote 84.5% (range 66.6%-100%) of the letters following the prompt. Throughout intervention and maintenance, a stable, increasing trend was observed in Katie's correct response in prewriting skills. During the last two maintenance points, a stable trend was observed.

System of least prompts. During baseline sessions of SLP, Katie performed 11.53% (range 0%-25%) steps of following one-step directions correctly. In baseline there was some instability observed in the initial baseline sessions, but eventually there was a stable level observed before intervention. Once intervention was implemented, a strong, positive effect was observed; Katie performed 89.44% (range 73.32% - 100%) steps of following one-step directions correctly. Following intervention, there were three

maintenance checks. During the maintenance checks, Katie responded correctly at 98.61% (range 95.8%-100%) of the steps. After the first intervention session, there was a stable level observed for Katie's implementation for following one-step direction, and consistency during the last two maintenance points.

Enhanced milieu teaching. During baseline sessions of EMT, Katie was observed to have a consistent and stable correct initiation with peers at 16.8% (range 0%-33.3%) of the trials. Once intervention was implemented, a strong, positive effect was observed and Katie performed 97.21% (range 83.3%-100%) of the steps of initiating with peers correctly. Following intervention, there was one maintenance check. During the maintenance check, Katie responded correctly at 100%. During intervention and maintenance, a stable level was observed for Katie's correct response to the EMT procedure.

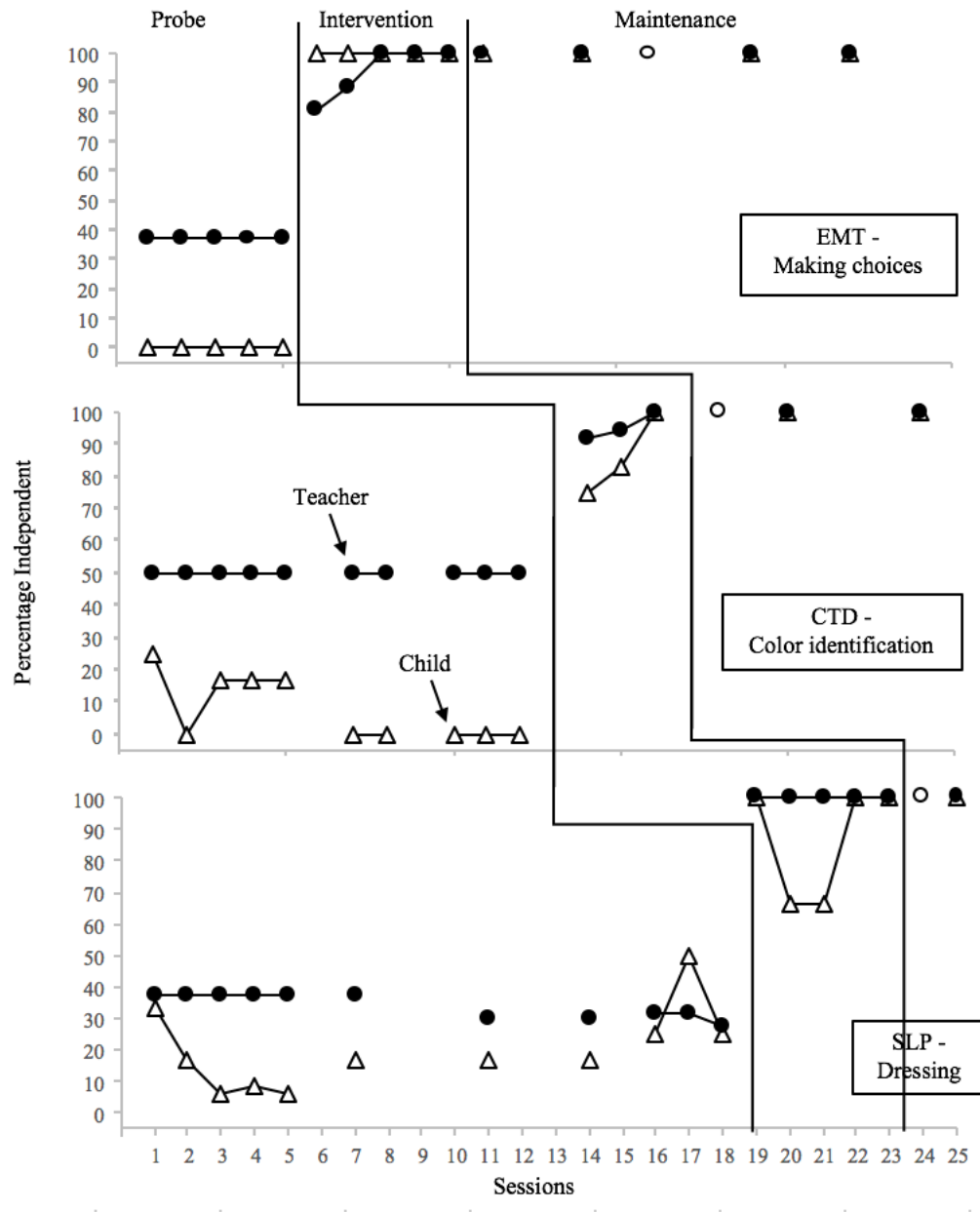


Figure 3.1 Mary's procedural implementation of systematic teaching strategies and Katie's correct responses, Percentage of independent responding for teacher's implementation of target instructional procedures and child's engagement in target skills. Open circles indicate generalization sessions. Training took place between probe and intervention sessions. EMT=enhanced milieu teaching, CTD=constant time delay, SLP=system of least prompts.

Dyad 2

Teacher Behavior: Sally Figure 3.2 displays Sally's fidelity of implementation for each systematic teaching strategy.

System of least prompts. System of least prompts was the first strategy that Sally implemented to teach Jessica dressing skills. During the baseline sessions, a stable level was observed in Sally's correct implementation of SLP; she correctly implemented 37.5% (range = 37.5%- 37.5%) of the steps. Once baseline data were stable, Sally was trained to use SLP. There was an immediate positive effect observed in her implementation of SLP following the training. It took Sally four sessions to reach criterion; she correctly implemented 97.23% (range 96%-100%) of the steps of SLP. Sally completed four maintenance sessions throughout the rest of the study; she correctly implemented SLP with 100% accuracy. Sally completed one generalization session of SLP after mastery. She used SLP to teach following one-step directions to a different child and correctly implemented the procedure at 100%. During intervention and maintenance, a stable consistent level was observed in Sally's correct implementation of SLP.

Enhanced milieu teaching. Enhanced milieu teaching was the second strategy Sally learned to teach Jessica responding to questions. During the baseline sessions, it was observed that Sally was consistency implementing 37.5% (mean=37.5%) of the steps correctly. After a stable baseline, Sally was trained on EMT. Once again, immediately following the training, there was a strong, positive effect on Sally's implementation of EMT. It took three sessions for her to reach criterion, correctly implementing 98.61% (range 95.83%-100%) of the steps. Sally completed two maintenance sessions throughout the rest of the study; she correctly implemented EMT at 100%. During intervention and

maintenance, a stable consistent level was observed in Sally's correct implementation of EMT. Sally completed one generalization session of EMT after mastery. She used EMT to teach saying words to a child other than Jessica and correctly implemented the procedure at 100%.

Constant time delay. Sally implemented CTD last; she used CTD to teach Jessica letter identification. During baseline, a consistent, stable level was initially observed however during the last few baseline sessions there was some variability. Sally correctly implemented 54.34% (range 50%-66.6%) of the steps of the procedure during baseline. After the stable baseline sessions, Sally was trained in CTD and an immediate strong, positive effect was observed. It took Sally three days to reach criterion on implementing the steps of CTD. She correctly implemented 100% of steps correctly. Sally completed one maintenance session throughout the rest of the study; she implemented 100% of steps correctly. During intervention and maintenance, a stable consistent level was observed in Sally's correct implementation of CTD. Sally completed one generalization session of CTD after mastery. She used CTD to teach making choices to a different child and correctly implemented the procedure at 100%.

Child: Jessica Figure 3.2 displays Jessica's mastery of her target skills for each systematic teaching strategy. She learned letter identification with CTD, responding to questions with EMT, and dressing skills with SLP.

System of least prompts. During the baseline sessions of SLP, a decreasing trend was observed in Jessica's implementation of the correct steps of dressing. She performed 11.66% (range 6.25%-24%) steps of dressing skills correctly. Once intervention was implemented, a strong, positive effect was observed however there was instability in the

rest of her intervention sessions. During intervention, Jessica performed 62.07 (range 33.3%-80%) steps of the dressing skills. Following intervention, there were four maintenance checks. During the maintenance checks, Jessica performed 90.1% (range 66.6%-100%) steps of dressing skills correctly. During the maintenance sessions, there was a positive trend observed with stability in the last two sessions.

Enhanced milieu teaching. During the baseline sessions, a stable level was observed in Jessica's correct response to questions; she performed 0% steps of responding to questions correctly. There was a strong, positive effect observed once intervention was observed. However, there was some stability in the trend. Once intervention was implemented, Jessica performed 94.4% (range 83.3%-100%) steps of responding to questions correctly. Following intervention, there were two maintenance checks. During the maintenance checks, Jessica correctly responded to 100% of the questions.

Constant time delay. During the baseline sessions of CTD, Jessica had a stable level of identifying 11.26% (range 0%-33.3%) steps of identifying letters correctly. Once intervention was introduced, there was a strong, positive effect observed. Constant time delay was initially implemented with a 0s delay interval for one session. During this session Jessica named 100% of the letters correctly. Following the 0s delay, the delay interval was increased to 3s. During the 3s delay interval, Jessica correctly named an average of 100% of the letters. Following intervention, there was one maintenance check. During the maintenance check, Jessica correctly named 100% of the letters. During the intervention and maintenance, there was a stable level in Jessica's correct response to CTD.

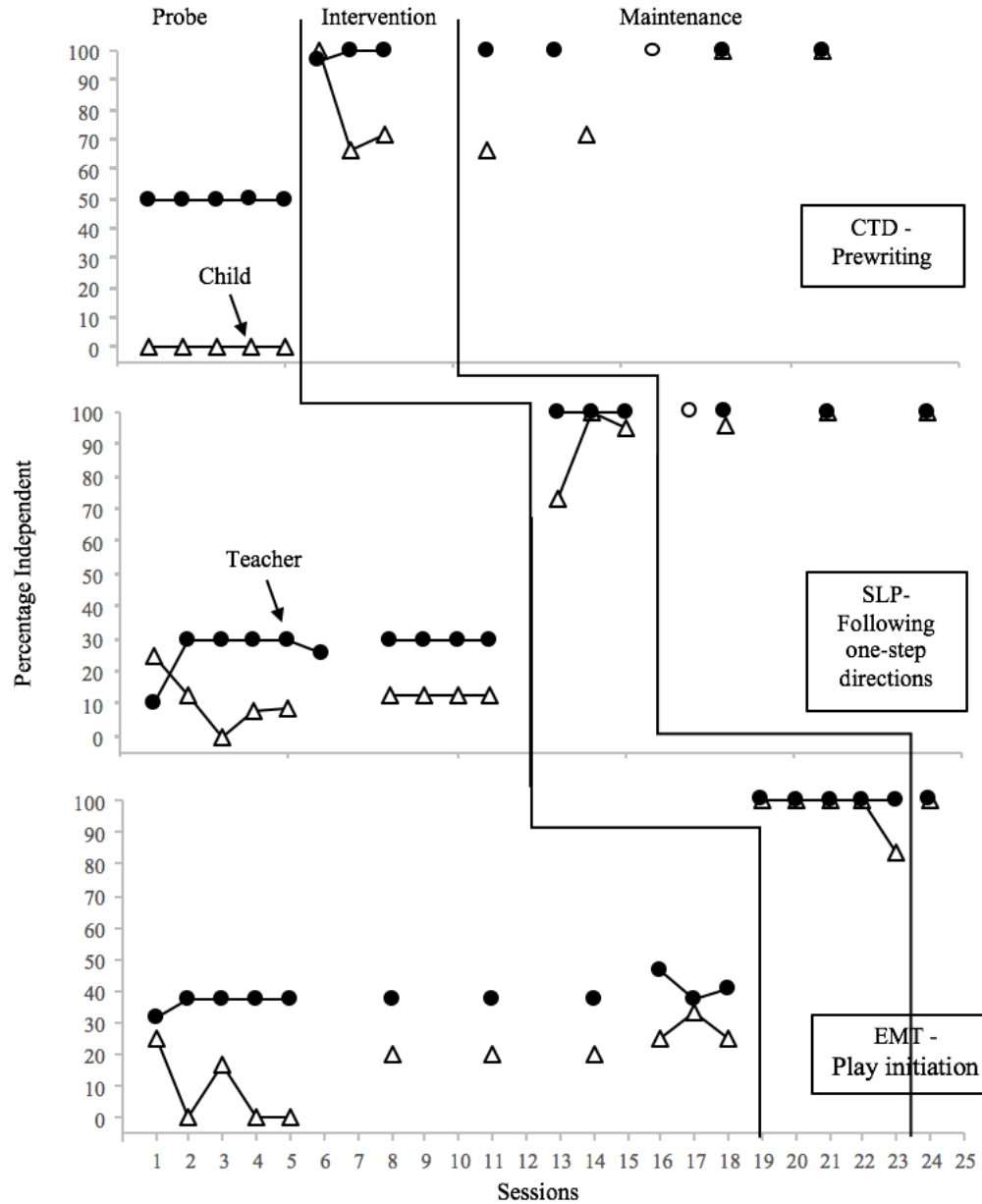


Figure 3.2 Sally’s procedural implementation of systematic teaching strategies and Jessica’s correct responses. Percentage of independent responding for teacher's implementation of target instructional procedures and child's engagement in target skills. Open circles indicate generalization sessions. Training took place between probe and intervention sessions. EMT=enhanced milieu teaching, CTD=constant time delay, SLP=system of least prompts.

Dyad 3

Teacher Behavior: Katherine Figure 3.3 displays Katherine's fidelity of implementation for each systematic teaching strategy.

Enhanced milieu teaching. Enhanced milieu teaching was the first strategy Katherine learned to teach Jackson to make choices. During the baseline sessions, Katherine has a stable level of 37.5% of the steps of EMT implemented correctly. After a stable baseline, Katherine was trained on EMT and there was an immediate positive effect on her implementation of EMT during intervention. It took five sessions to reach criterion with an accelerating trend and finally leveling off at the end of intervention. She correctly implemented 93.82% (range 80.32%-100%) of the steps. Katherine completed four maintenance sessions throughout the rest of the study; she correctly implemented EMT at 100%. Katherine completed one generalization session of EMT after mastery. She used EMT to teach responding to questions to another child in the classroom and correctly implemented the procedure at 100%. Katherine had a stable, consistent level throughout the end of intervention and maintenance sessions.

Constant time delay. Katherine implemented CTD second; she focused on Jackson identifying colors. During baseline, Katherine had a stable, consistent level of correctly implementing 50% of the steps of the intervention. After the stable baseline sessions, Katherine was trained in CTD. Katherine had an immediate positive effect in her implementation of CTD. It took Katherine three days to reach criterion on implementing the steps of CTD. She correctly implemented 95.4% (range 91.77%-100%) of steps correctly. Throughout intervention, Katherine was observed to have an accelerating trend of implementation and during maintenance these sessions became stable and consistent. Katherine completed two maintenance sessions throughout the rest

of the study; she correctly implemented 100% of steps correctly. Katherine completed one generalization session of CTD after mastery. She used CTD to teach counting skills to someone other than Jackson and correctly implemented the procedure at 100%.

System of least prompts. System of least prompts was the last strategy that Katherine implemented to teach Jackson dressing skills. During the baseline sessions, Katherine has a consistent, stable level of correctly implementing 34.41% (range 27.2%-27.5%) of the steps. Once baseline data were stable, Katherine was trained to use SLP. Following the training, Katherine had an immediate positive effect and was observed to have a consistent, stable level throughout the rest of the study. It took Katherine five sessions to reach criterion; she correctly implemented 100% of the steps of SLP. Katherine completed one maintenance session throughout the rest of the study; she correctly implemented SLP at 100%. Katherine completed one generalization session of SLP after mastery. She used SLP to teach following directions to a different child and correctly implemented the procedure at 100%.

Child: Jackson Figure 3.3 displays Jackson's mastery of his target skills for each systematic teaching strategy. He learned color identification with CTD, making choices with EMT, and dressing skills with SLP.

Enhanced milieu teaching. During the baseline sessions of EMT, Jackson has a stable level of performing 0% steps of making choices correctly. Once intervention was implemented, there was an immediate positive effect on Jackson's choice making. Jackson performed 100% of the steps of making choices correctly. Following intervention, there were four maintenance checks. During the maintenance checks, Jackson correctly responded to making choices 100% of sessions. Throughout

intervention and maintenance phases, Jackson had a stable, consistent level of performance.

Constant time delay. During the baseline sessions of CTD, Jackson had some variability in identifying colors correctly. Jackson performed 7.48% (range 0%-25%) steps of identifying colors correctly. Once intervention was introduced, CTD was initially implemented with a 0s delay interval for one session. During this session Jackson performed 75% steps of identifying colors correctly. Following the 0s delay, the delay interval was increased to 3s. During the 3s delay interval, Jackson performed 91.65% (range 83.3%-100%) steps of identifying colors correctly. During intervention, there was an accelerating trend of Jackson identifying colors correctly. Following intervention, there were two maintenance checks. During the maintenance checks, Jackson correctly named 100% of the color and had a stable, consistent level throughout the rest of study in identifying colors.

System of least prompts. During baseline sessions of SLP, Jackson had some variability in dressing skills. Jackson performed 20.04% (range 0%-50%) of the steps of dressing skills correctly. Once intervention was implemented, Jackson performed 86.65% (range 66.63%-100%) of the steps of dressing skills correctly. Initially in intervention, there was an immediate effect on Jackson's implementation of dressing skills. However, during the next two sessions, there was a decelerating trend happening. During the last two intervention sessions, an accelerating trend took place and a stable, consistent level was observed. Following intervention, there was one maintenance checks. During the maintenance checks, Jackson correctly performed 100% of the dressing skills.

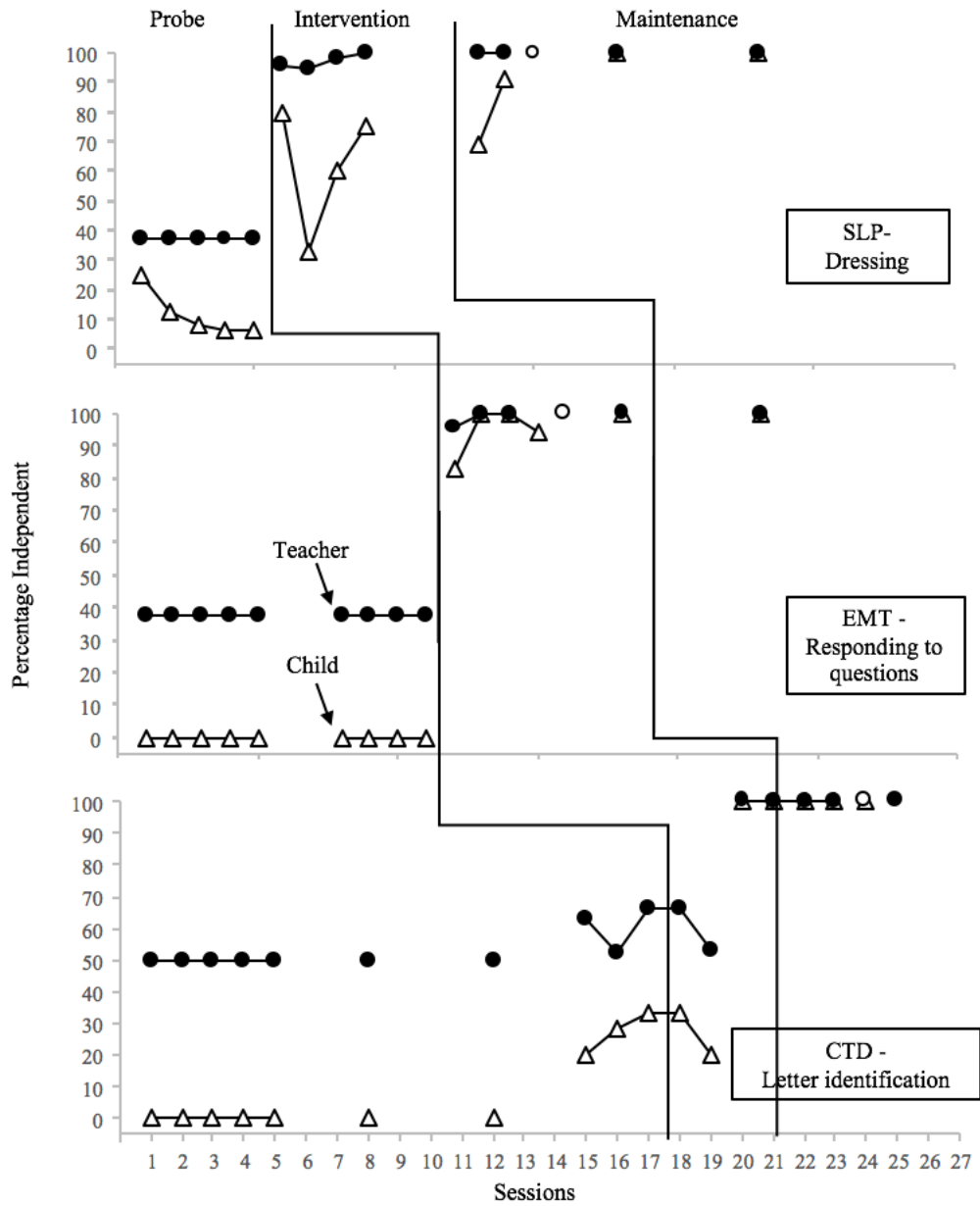


Figure 3.3 Katherine’s procedural implementation of systematic teaching strategies and Jackson’s correct responses. Percentage of independent responding for teacher’s implementation of target instructional procedures and child’s engagement in target skills. Open circles indicate generalization sessions. Training took place between probe and intervention sessions. EMT=enhanced milieu teaching, CTD=constant time delay, SLP=system of least prompts.

Dyad 4

Teacher Behavior: Tracey Figure 3.4 displays Tracey's fidelity of implementation for each systematic teaching strategy.

Constant time delay. Tracey implemented CTD first with Robert; she focused on counting skills. During baseline, she correctly implemented 50% of the steps of the intervention and had a stable, consistent level. After the baseline sessions, Tracey was trained in CTD. After the training, there was an immediate positive effect on her implementation of CTD. It took Tracey three days to reach criterion on implementing the steps of CTD. She correctly implemented 97.21% (range 91.65%-100%) of steps correctly. Tracey completed two maintenance probes throughout the rest of the study; she implemented 100% of steps correctly. Tracey completed one generalization session of CTD after mastery. She used CTD to teach letter identification to a child other than Robert and correctly implemented the procedure at 100%. Tracey had a stable, consistent level throughout the end of intervention, maintenance and generalization sessions.

Enhanced milieu teaching. Enhanced milieu teaching was the last strategy Tracey learned to teach Robert requesting. During the baseline sessions, Tracey correctly implemented 37.5% of the steps and a stable, consistent level was observed. After a stable baseline, Tracey was trained on EMT. There was an accelerating trend in her implementation of EMT following the training session. It took five sessions to reach criterion, correctly implementing 88.04% (range 55.53%-100%) of the steps. Tracey completed one maintenance probe throughout the rest of the study; she correctly implemented EMT at 100%. Tracey completed one generalization session of EMT after mastery. She used EMT to teach responding to questions to another child in the

classroom and correctly implemented the procedure at 100%. After the three initial intervention sessions, it was observed that Tracey had a stable, consistent level of implementation throughout the rest of the study.

System of least prompts. Throughout the study, there were issues of Tracey's and Robert's attendance during the school day. The researcher later learned that Tracey had some personal issues at home that required her to frequently take time away from work. The researcher also learned that Robert lived in the neighborhood of the school and due to any weather issues (i.e., rain, snow, ice) he was not brought to school. As the second tier of intervention was winding down and the study was starting to come to a close, it was decided to have Tracey and Robert finish tier two of the intervention and concluded their portion of the study.

Baseline sessions were conducted with Tracey implementing SLP with Robert teaching following one-step directions. During these baseline sessions, there was a consistent, stable level observed for Tracey's baseline implementation.

Child: Robert Figure 3.4 displays Robert's mastery of his target skills for each systematic teaching strategy. He learned counting with CTD and requesting with EMT. Robert did not complete tier three intervention of SLP.

Constant time delay. During baseline sessions of CTD, Robert had a stable and consistent level of performing 0% of the steps of counting correctly. Once intervention was introduced, CTD was initially implemented with a 0s delay interval for one session. During this session Robert performed 100% of the steps of counting correctly. Following the 0s delay, the delay interval was increased to 3s. During the 3s delay interval, Robert performed 55% (range 50%-60%) of the steps of counting correctly. During the initial

intervention session, there was an immediate effect on Robert's ability to count, however when the 3s delay was introduced there was a decelerating trend observed. Following intervention, there were two maintenance checks. During the maintenance checks, Robert made progress in his ability to count during the CTD procedure and there was a stable, consistent level during maintenance. Robert correctly counted 100% of the maintenance sessions.

Enhanced milieu teaching. During baseline sessions of EMT, Robert had a stable and consistent level of performing 0% of the steps of requesting items correctly. There was an accelerating trend in his ability to request items during the intervention phase following Tracey's training. Once intervention was implemented, Robert performed 86.66% (range 33.3%-100%) of the steps of requesting items correctly. Following intervention, there were one maintenance check. During the maintenance check, Robert correctly responded to requesting items 100% of the session. After the first initial intervention session, it was observed that Robert had a stable, consistent level of requesting items throughout the rest of the study.

System of least prompts. Throughout the study, there were issues of Tracey's and Robert's attendance during the school day. The researcher later learned that Tracey had some personal issues at home that required her to frequently take time away from work. The researcher also learned that Robert lived in the neighborhood of the school and due to any weather issues (i.e., rain, snow, ice) he was not brought to school. As the second tier of intervention was winding down and the study was starting to come to a close, it was decided to have Tracey and Robert finish tier two of the intervention and concluded their portion of the study.

Baseline sessions were conducted with Tracey implementing SLP with Robert teaching following one-step directions. During these baseline sessions, Robert showed some variability in his ability to follow one-step directions.

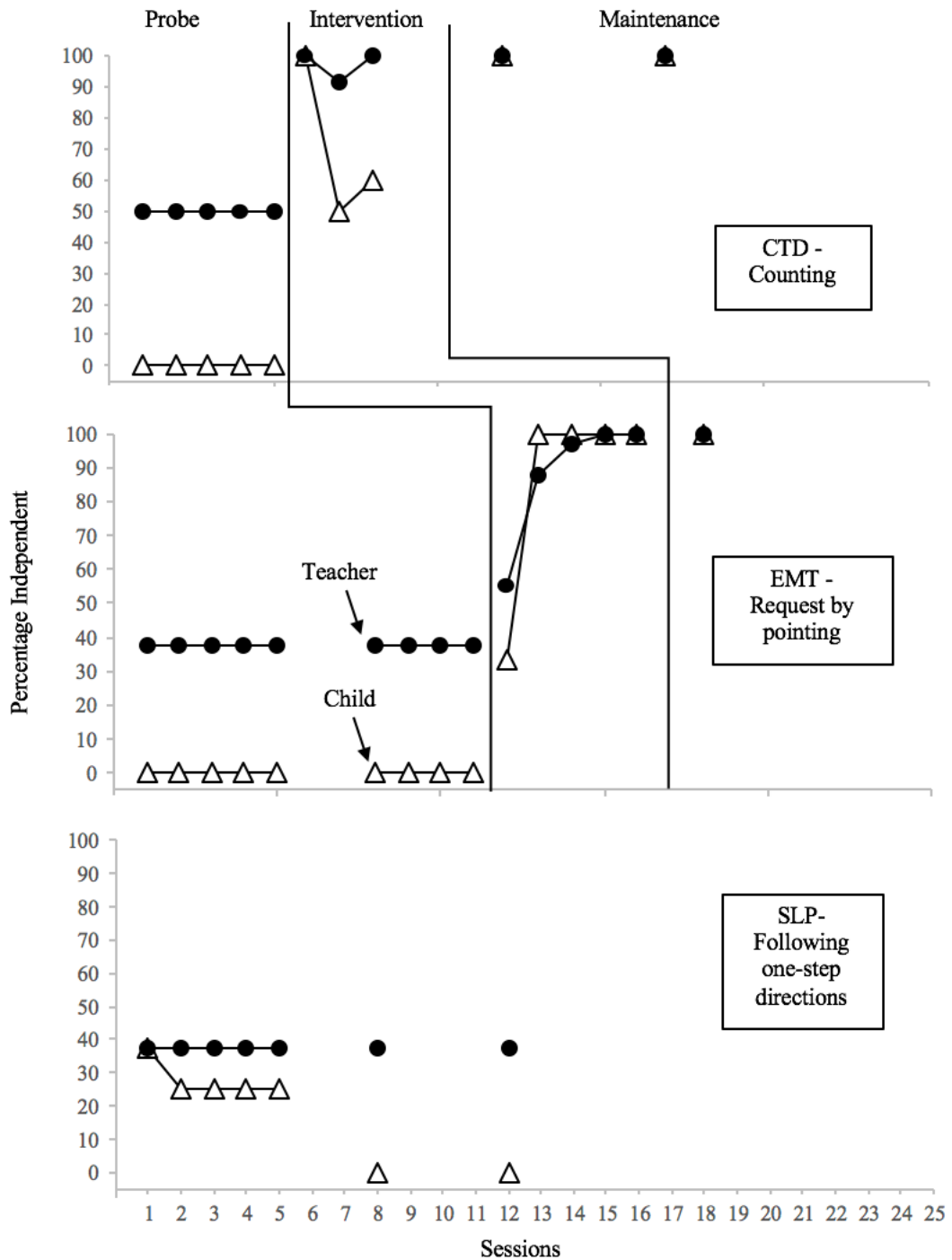


Figure 3.4 Tracey's procedural implementation of systematic teaching strategies and Robert's correct responses. Percentage of independent responding for teacher's implementation of target instructional procedures and child's engagement in target skills. Open circles indicate generalization sessions. Training took place between probe and intervention sessions. EMT=enhanced milieu teaching, CTD=constant time delay, SLP=system of least prompts.

Social Validity

Refer to Table 3.6 for teacher's mean social validity rating by question. Teachers completed the questionnaire following the mastery of each systematic teaching strategy and before training occurred for the next strategy. Based on the scores of the questions, the teachers believed their target child was making progress on their target skills either 'a lot' or 'mastered'. Teachers were 'somewhat interested' or 'very interested' in trying a new strategy if the one currently being used was not working. Teachers believed that the strategies were 'easy' and 'very easy' to implement in their classrooms. The teachers are 'sometimes' or 'almost always' likely to use the strategies in the future. All teachers agreed they would use CTD in the future. The lowest rated question on the questionnaire was *How likely are you to teach others about the strategies?* Teachers rated this question with 'every once in while', 'sometimes', and 'almost always'.

Table 3.6

Question	Scale (1-5 rating)	Systematic Teaching Strategy		
		CTD	EMT	SLP
To what extent do you believe your child made progress on the target skill using the strategy?	1 = <i>none</i> 5 = <i>mastered</i>	4.25	4.5	4.6
How likely would you be to try another strategy if the one you were using did not work?	1 = <i>not at all interested</i> 5 = <i>very interested</i>	4.5	4.5	4.3
To what extent do you believe that the strategy was easy to implement in your class?	1 = <i>very hard</i> 5 = <i>very easy</i>	4	4.75	4.3
How likely are you to use this strategy in the future?	1 = <i>never</i> 5 = <i>almost always</i>	5	4.75	4.6
How likely are you to teach others about the strategies?	1 = <i>never</i> 5 = <i>almost always</i>	4.5	3.75	4.3

Note. CTD = constant time delay, EMT= enhanced milieu teaching, and SLP = system of least prompts. SLP mean scores are calculated based on 3 teachers, CTD and EMT based on 4 teachers.

Refer to Table 3.7 for the mean rating on social validity questionnaires completed by the teachers at the end of the project. Teachers completed the questionnaire at the conclusion of the study. Seven of the 9 questions, received the highest score of 5 by the teachers. These questions were: *The training helped to facilitate my understanding the teaching strategy; The intervention plan completed during the training helped to facilitate my understanding the teaching strategy; The coaching sessions following each observation helped to facilitate my understanding the teaching strategy; The coach was knowledgeable in the content; I felt comfortable asking the coach questions; The feedback given to be by the coach was useful; and I will continue to use the information I learned from this project in my classroom.* The second highest rated question was *The videos used during the training helped to facilitate my understanding the teaching*

strategy; this question's mean rating by teachers was 4.75. The lowest rated question on the questionnaire was *I would take part in this project again*; which was rated by the teachers as 4.25. Three of the teachers rated the question as 'somewhat interested' and the fourth teacher rated it as 'very interested'. It should be noted despite being the lowest rated question on the questionnaire teachers left positive comments for the researcher, such as: *Rebecca did a wonderful job, and we both saw good progress on the child*; and *It was great incorporating a new teaching strategy and using it with all kids in the classroom*.

Table 3.7

Mean ratings (1-5) on social validity questionnaires completed by teachers after project

Question	Mean Rating	Comments
The training helped to facilitate my understanding the teaching strategy.	5	
The videos used during the training helped to facilitate my understanding the teaching strategy.	4.75	
The intervention plan completed during the training helped to facilitate my understanding the teaching strategy.	5	
The coaching sessions following each observation helped to facilitate my understanding the teaching strategy.	5	
The coach was knowledgeable in the content.	5	
I felt comfortable asking the coach questions.	5	
The feedback given to be by the coaching was useful.	5	
I will continue to use the information I learned from this project in my classroom.	5	
I would take part in this project again.	4.25	Rebecca did a wonderful job, and we both saw good progress on the child. It was great incorporating a new teaching strategy. And using it with all kids in the classroom.

Note. Rating scale 1 = *strongly disagree* 5 = *strongly agree*

Chapter Four: Discussion

The purpose of the present study was to investigate the ability of teachers to implement systematic teaching strategies with fidelity with children in Head Start classrooms. The targeted skills were taught using CTD, EMT, and SLP and they were embedded in naturally occurring opportunities in four preschool classrooms. The study also investigated whether the target children could make progress on new skills when their teachers' implement the systematic teaching strategies with fidelity. The data indicated that teachers effectively implemented the systematic teaching strategies of CTD, EMT and SLP. All four teachers reached criterion for the skills and demonstrated the abilities to maintain and generalize the strategies. The study also showed that the children could make progress on new skills when the systematic teaching strategies were implemented. The target skills implemented with each systematic teaching strategy were CTD: prewriting, counting, identifying colors and letters; EMT: initiating play, requesting, making choices, and responding to questions; and SLP: following one-step directions and dressing skills.

The primary research question evaluated whether teachers could implement systematic teaching strategies of CTD, EMT, and SLP with 90% accuracy after training and coaching. Data from this study suggest that, with proper training and coaching, teachers can implement systematic teaching strategies with fidelity. During baseline sessions, many of the teachers had an activity or materials ready, got the attention of the learner, and delivered a task direction. After training sessions, all teachers made significant gains ($M=51.35\%$) in their implementation of the teaching strategies. This suggests that the training made significant impact on the teachers and they gained

knowledge in how to implement the teaching strategies. Following each observation by the researcher, the teachers received a coaching session. These coaching sessions improved the teachers' implementation by 7.24% (range 1.05%-32.67%) after each coaching session, suggesting that the coaching sessions made an impact on the implementation by teachers. The biggest issue during the teachers' implementation of the systematic teaching strategies was knowing *when* and *how* to implement the strategy. During the trainings, the researcher and teacher developed intervention plans for one specific activity or time to implement the strategy. The activity or time on the intervention plan was what the teachers were most comfortable implementing during observations by the researcher. During coaching sessions, the researcher spent time discussing other times and activities to implement the strategy.

The secondary research question focused on whether young children with and without disabilities would make progress on new skills when teachers implement the procedures of CTD, EMT, and SLP. The current study had four children participants and one of them had a documented disability. During baseline sessions, the children showed little to no progress in their target skills (range 0%-37.5% correct). However, after intervention all children made gains in their target skills. This suggests that children can make progress on new skills when teachers implement the procedures of CTD, EMT, and SLP.

The findings of the current study align with those found in similar studies. In a study by Shepley, Lane, Grisham-Brown, Spriggs, and Winstead (2017), the researchers trained and coached two preschool teachers in inclusive early childhood settings in naturalistic instructional procedures (i.e., SLP, CTD, naturalistic language intervention,

and progressive time delay). Their results indicated that the training and coaching package was effective in teaching teachers' naturalistic instructional procedures.

In the current study, teachers were trained in systematic teaching strategies similar to those of Shepley et al., 2017 (i.e., CTD and SLP). In addition, in both studies, teachers were trained and coached to a criterion level of 90% correct implement of each strategy. The current study required teachers to maintain this criterion level for 3 days whereas Shepley et al., focused on two school days. Finally, in both studies, the teachers reached mastery of implementation of the strategies being taught.

Results from the social validity of the training and coaching sessions are similar findings to those of a review of coaching literature by Artman-Meeker, Fetting, Barton, Penne, & Zeng, 2015. In 15 studies Artman-Meeker, et al., 2015 reported teacher satisfaction with the coaching as favorable. In the current study, 100% of the teachers strongly agreed that the training helped to facilitate their understanding of the teaching strategy and the coaching sessions following each observation helped to facilitate their understanding of the teaching strategy.

The results of this study help to extend the literature on training and coaching teachers in early childhood classrooms in six ways. First, this study focused on Head Start classrooms, unlike other studies that occurred in inclusive preschool classrooms, separate classrooms for children with special needs, homes or multiple settings (Artman-Meeker, et al., 2015). Artman-Meeker et al. (2015) conducted a review of literature on coaching for early childhood and out of 48 studies only 11 of them took place in Head Start classrooms (Artman-Meeker, et al., 2015).

Second, this study showed that we can teach teachers to fidelity of a systematic teaching strategy and show children making progress on target skills. In a review of

coaching literature, only 57% of the studies report child progress (Artman-Meeker, et al., 2015). Of those studies, none of them focused on academic target skills and only six studies gathered child data during each observation/visit with teachers. The current study focused on language and literacy, academic skills, and self-helps skills.

Third, this study focused on teachers maintaining fidelity of multiple systematic teaching strategies across replications and procedures. Most research on training and coaching focus on teachers learning only one strategy (Hsieh, Hemmeter, McCollum, & Ostrosky, 2009). The current study focused on teachers learning three different systematic teaching strategies that targets three different skills. They implemented the strategies over a course of a 11-week period. For example, while receiving training and coaching on the CTD procedure, Sally maintained high levels of fidelity on previously mastered procedures (EMT, SLP). Teachers maintained the systematic teaching strategies with a high-level of fidelity over the course of the study.

Fourth, this study shows that teaching a teacher one systematic teaching strategy, results in teachers knowing how to implement similar strategy. While there was some increase in the correct implementation of steps during baseline sessions, teachers were still making errors. This study shows that teachers still needed training and coaching sessions to implement each systematic teaching strategy to criterion with fidelity.

Fifth, the study showed that teachers could generalize the systematic teaching strategies with different skills and children. There was only one generalization session per teacher per condition, however the teachers implemented the strategies at 100%. In a study by Shepley et al., 2017, two teachers were trained in naturalistic instructional

procedures very similar to this study. However, during generalization probes the data were variable with no significant trends observed.

Lastly, this study extends the literature on coaching teachers. Research suggests that there are three major issues with coaching with early childhood providers. The first is that there is insufficient personnel to support all of the teachers in need of coaching (Israel, Carnahan, Snyder, & Williamson, 2012). While this present study, was small in size (i.e., one researcher and four teacher participants), it does show that the time needed to improve teachers' behavior is relatively short. The present study took place over 26 sessions. The teachers were asked to implement the teaching strategies once per day, so the researcher only spent around 10 to 15 mins in each classroom. While it may not be possible to support all teachers in a school community through coaching, coaching could occur in smaller groups.

Garet et al., 2008 indicate that “the range of coaching received by teachers ranged from 1.2 hours to 173 hours over the course of a school year”. This present study shows that small amounts of coaching time results in teachers improving behaviors. The average coaching session lasted 5 min (range 2–6.5min). The total amount of coaching a teacher received per condition was 15 min to 25 min. Over all three tiers, the teachers received an average of 3.9 (range 3-5) coaching sessions and a total of 19.5 min (range 15-25min) of coaching. These data demonstrate the need for a relatively small amount of time for coaching.

Finally, there is a lack of understanding about what behaviors should comprise coaching and how it should look in actual practice (Jayaraman, Marvin, Knoche, & Bainter, 2015). The coaching in this study was an informal conversation between the

teacher and researcher following the observations. The researcher greeted the teacher, explained the purpose of the coaching session, reviewed the coaching notes and feedback form, asked teacher her thoughts on how implementation of the target behavior was going, gave a positive example of how the teacher implemented the target behavior, and gave a concrete suggestion of how to improve. The present study took place in Head Start classrooms, so the coaching sessions needed to be informative but, also brief so that the teachers could continue with their other duties. The *look* of coaching may differ between settings because some programs/classrooms may allow time for more formal coaching sessions (i.e., sitting down one-on-one with a teacher outside the classroom) while others will not. In addition, what should be covered in each coaching session should be established before beginning the session. The researcher worked with her committee chair to discuss the most important aspects that needed to be covered while talking with the teachers. Together they created the coaching protocol sheet for use in this study.

Coaching strategies will also depend on the skill being taught to the teachers. The systematic teaching strategies used in this study have a very specific set of steps that the teacher needed to implement. Therefore, the researcher looked for the teacher to implement each of those steps during coaching sessions. If the teachers were being taught something more complex, then the coaching session would need to be longer.

Finally, in order for coaching to be successful, the coach and teacher need to build a relationship with each other. In the current study, the researcher did a few things to help build those relationships. First, the researcher had all materials organized and ready for teachers prior to the beginning of the study. She offered to meet with the teachers and center director multiple times to make sure everyone understood the study and what was

expected from them. Second, prior to baseline sessions, the researcher tried to get to know the participants better and asked questions, such as: *How long have you worked here? Have you worked other places? What does your classroom schedule typically look like? Are there times that are better for me to come in than others?* Third, the researcher followed the lead of the teacher and allowed them to tell her when they were ready to implement the strategy. The researcher reiterated that she could wait until the teacher was ready; the researcher did not want the teachers to feel rushed because she was present in the classroom. Fourth, after the fidelity of implementation checks, the researcher told the teacher that she was ready to meet to talk whenever the teacher was available. During some sessions the teachers were immediately ready and other times they would need to handle something in the classroom beforehand. Fifth, during the coaching sessions, the researcher knew the teachers' primary job was teaching the children in the classroom. If a coaching session needed to be interrupted so the teacher could deal with something in the classroom, the researcher allowed it. Finally, the researcher made sure to praise and thank the teachers during each session. Praising the teachers was a component of the coaching session protocol, but the researcher made sure she went beyond just "You did a good job implementing CTD with Robert today!" The researcher made sure the praise was specific to the session. Before the researcher left the classroom following each observation, she thanked the teacher for participating in the study and told her when she would be back.

Limitations

A major limitation of this study is the lack of interobserver agreement data collected. In the current study only 11.26% of interobserver agreement was collected across all sessions. According to the What Works Clearinghouse (2014), a minimum of

20% across all condition and participants should be collected. The lack of interobserver agreement negatively effects the internal validity of the current study and whether the researcher's conclusions are correct and if we can confidently say that a relationship exists between the PD + coaching sessions and the teachers' implementation of the systematic teaching strategies. If a future researcher would like to replicate this study, please note that you need to control for the internal validity issue of teachers 'teaching' each other. The researcher decided to control for this by assigning teachers to different systematic teaching strategies so that they would be unable to 'teach' each other.

Another limitation of the study is that Tracey and Robert did not participate in the third tier of intervention. According to the What Works Clearinghouse (2014), we had the minimum number of participants to use a multiple probe across behaviors design without including the fourth dyad. However, the fourth dyad would have provided the researcher with additional data on whether the PD + coaching sessions had an effect on the teachers' implementation of the systematic teaching strategies and the progress the target children were making on their target skills.

A third limitation of the current study is the wording of the questions for the social validity questionnaires. The types of questions used in this study are similar to those used in other single case designs (Shepley et al., 2017), however there are issues with using these types of Likert-scale questionnaires. First, the teacher's judgment of the strategy might be influenced by the teacher's admiration towards the researcher. Also, the questions asked about the teachers' perceived effectiveness of the strategies rather instead of qualitative data on the children's progress. Finally, teachers' willingness to participate in a study could influence their social validity of the study. In the current study, the

teachers' had to participate in the study according to the director at their Head Start center. In the future, questionnaires about social validity should include measures that are more appropriate in assessing the acceptability of systematic teaching strategies.

Practical Limitations

It should be noted that there are some practical limitations to this study. First, the roundtrip time to the Head Start Center was 40 to 45 min each day. The researcher was working full-time as a preschool teacher herself, so the scheduled time for her to come was not always the most convenient time for the Head Start Center teachers. The researcher was only able to attend the Head Start Center in the mornings once the children arrived at 9:30 AM. During her time there, she only saw snack, circle time and some free choice. If the researcher had been able to attend other times of the day, the target skills might have been embedded more naturally into the schedule and curriculum.

In addition, the Head Start Center followed the local school district calendar and weather policy. During the study, there were three scheduled days off of school, and two school closures due to weather. Even though there were five days of no school, the children made progress on their target skills.

Finally, it should be noted that Robert missed a great deal of school due to illness or weather conditions. His family lived close to the Head Start Center and walked to school each day. If the weather was not good (i.e., wet, rainy, icy, snowy) then he would not attend school. While Robert did make progress on his target skills, he was unable to complete the third tier of intervention, partially due to absences.

Working within the confines of a Head Start center and classrooms can be difficult. Since Head Start is funded through different agencies, there were many teacher

observations during the everyday schedule. Also, teachers were required to attend multiple professional developments throughout the school year. This took away their time in the classrooms and ability to make improvement in their everyday skills and tasks.

Future Research

In the future, the current study should be replicated, however a major focus should be on the What Works Clearinghouse standards. In particular, researchers should focus on meeting the minimum standard of 20% of interobserver agreement across all conditions and participants to help control for internal validity.

The results of this study show that the training alone was not enough to help teachers make progress on the implementation of the systematic teaching strategies. Teachers still needed coaching sessions to help them reach the criterion level, however, the training sessions alone helped increase their implementation by 51.53%. Most research suggests that trainings alone are not enough for teachers to make progress on skills (Guskey & Yoon, 2009). In the future, a group design could be used to compare a PD only group and a PD + coaching group, to see which group makes more progress on their implementation of systematic teaching strategies.

As previously stated, after the training sessions the teachers' implementation of the systematic teaching strategies increased by 51.53%. Future research should be done to test if there was something specific about the trainings in this study that lead to an immediate, positive effect on the teachers.

In the current study, teachers were able to generalize the systematic teaching strategies with different skills and children. However, there was only one generalization

session. Future research could be done to see if teachers can maintain generalization over time.

The researcher has created two appendixes that might be helpful to anyone who would like to replicate the current study. Appendix L Top Five Tips, is a brief list of the top five things that someone would need in order to successfully complete the current study. Appendix M Budget Analysis, is a spreadsheet of the costs of the current study and what financial support needed in order to replicate this study in the future.

APPENDIX A

Consent to Participant in a Research Study for Teachers

Consent to Participate in a Research Study

Training Teachers to Implement Systemic Strategies in Preschool Classrooms with Validity

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being invited to take part in a research study about the fidelity of implements of systemic strategies by teachers. You are being invited to take part in this research study because you are a current teacher and might benefit from learning about systemic strategies, constant time delay, systems of least prompts, and enhanced milieu teaching, how to implement them correctly with 100% accuracy. If you volunteer to take part in this study, he/she will be one of about four people to do so.

WHO IS DOING THE STUDY?

The person in charge of this study is Rebecca Crawford from the University of Kentucky Department who is currently a Doctoral Student in the Department of Education. She is being guided in this research by Dr. Jennifer Grisham-Brown of the University of Kentucky Department of Education. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of this study is to see how well teachers can implement teaching strategies (constant time delay, systems of least prompts, and enhanced milieu teaching) with fidelity. We will also look at the children receiving these interventions and see if they can acquire new skills.

By doing this study, we hope to learn about the fidelity of implement of systemic strategies by teachers.

ARE THERE REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY?

The criterion for the teacher research subject is that they are teachers in a preschool classroom and have not been trained in specific teaching strategies. A teacher research subject would be excluded from this study if they were not a teacher or if they had previously received training in teaching strategies of constant time delay, systems of least prompts, and enhanced milieu teaching

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted in your classroom and school during normal classroom times. The training of the teaching strategies will be conducted at your school outside of your classroom time.

WHAT WILL YOU BE ASKED TO DO?

The research will take place in the normal classroom environment. There will be some training of the teachers on constant time delay, systems of least prompts, and enhanced milieu teaching before the intervention can be implemented. The training will be a 60 to 90-minute training that consists of watching a video and then role-playing. Throughout the training, the teachers will receive feedback and coaching from the researcher.

Once the research has begun, the researcher will coach you on these teaching strategies in order to make sure that the invention is being done correctly.

The teachers will also be trained on collecting data of the children-taking place in the research. You will receive a 30-minute training on this prior to implementation.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

To the best of our knowledge, the things you will be doing have no more risk of harm than you would experience in everyday life.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

There is no guarantee that you will get any benefit from taking part in this study. Your willingness to take part, however, may, in the future, help society as a whole.

DO YOU HAVE TO TAKE PART IN THE STUDY?

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering.

IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?

If you do not want to be in the study, there are no other choices except not to take part in the study.

WHAT WILL IT COST YOU TO PARTICIPATE?

There are no costs associated with taking part in the study.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?

You will not receive any rewards or payment for taking part in the study.

WHO WILL SEE THE INFORMATION THAT YOU GIVE?

We will make every effort to keep confidential all research records that identify you to the extent allowed by law.

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is. All information collected will be stored at the University of Kentucky and will be kept for 6 years after the completion of the study.

We will keep private all research records that identify you to the extent allowed by law. However, there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court. Also, we may be required to show information which identifies you to people who need to be sure we have done the research correctly; these would be people from such organizations as the University of Kentucky.

CAN YOUR TAKING PART IN THE STUDY END EARLY?

If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. You will not be treated differently if you decide to stop taking part in the study.

The individual conducting the study may need to withdraw you from the study. This may occur if you are not able to follow the directions they give to you, if you being in the study is more risk than benefit to you, or if the agency funding the study decides to stop the study early for a variety of scientific reasons. There will be no consequences if you withdraw or if the individual conducting the study may need to withdraw you from the study.

WHAT IF NEW INFORMATION IS LEARNED DURING THE STUDY THAT MIGHT AFFECT YOUR DECISION TO PARTICIPATE?

If the researcher learns of new information in regards to this study, and it might change your willingness to stay in this study, the information will be provided to you. You may be asked to sign a new informed consent form if the information is provided to you after you have joined the study.

WHAT ELSE DO YOU NEED TO KNOW?

There is a possibility that the data collected from you may be shared with other investigators in the future. If that is the case the data will not contain information that can identify you unless you give your consent or the UK

Institutional Review Board (IRB) approves the research. The IRB is a committee that reviews ethical issues, according to federal, state and local regulations on research with human subjects, to make sure the study complies with these before approval of a research study is issued.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Rebecca Crawford at (859)257 – 7732. If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky between the business hours of 8 am and 5 pm EST, Mon-Fri. at 859-257-9428 or toll-free at 1-866-400-9428.

If you decide to participate in this study, please sign below and return to Rebecca Crawford. She will make a copy of the form for you to keep for your records.

You are the participant or are authorized to act on behalf of the participant. You have read this information, and you will receive a copy of this form after it is signed.

Signature of research subject or (if applicable:)
*research subject's legal representative

Date

Printed name of research subject and (if applicable:)

APPENDIX B

Consent to Participant in a Research Study for Children

Consent to Participate in a Research Study

Training Teachers to Implement Systemic Strategies in Preschool Classrooms with Validity

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

Your child is being invited to take part in a research study about the fidelity of implements of systemic strategies by teachers. If you allow your child to take part in this study, then he/she will be one of about 4 people to do so.

WHO IS DOING THE STUDY?

The person in charge of this study is Rebecca Crawford from the University of Kentucky who is currently a Doctoral Student in the Department of Education. She is being guided in this research by Dr. Jennifer Grisham-Brown of the University of Kentucky Department of Education. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of this study is to see how well teachers can implement teaching strategies (constant time delay, systems of least prompts, and enhanced milieu teaching) with fidelity. We will also look at the children receiving these interventions and see if they can acquire new skills.

By doing this study, we hope to learn about the fidelity of implement of systemic strategies by teachers.

ARE THERE REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY?

The criterions for the preschool research subjects are children with and without disabilities who are in a preschool classroom and are between the ages of 3 and 5 years old. A preschool research subject would be excluded from this study if they were not in a preschool classroom, and were not between the ages of 2-5 years old.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted in your child's classroom during the normal classroom hours as part of the normal course of activities with children.

WHAT WILL YOU BE ASKED TO DO?

The research will take place during your child's normal classroom routine. Their teacher will be implementing interventions with your child. These interventions are play-based and would use their classroom materials.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

To the best of our knowledge, the things your child will be doing have no more risk of harm than they would experience in everyday life.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

There is no guarantee that your child will get any benefit from taking part in this study. Your child's willingness to take part, however, may, in the future, help society as a whole.

DO YOU HAVE TO TAKE PART IN THE STUDY?

If you allow your child to take part in the study, it should be because you want your child to volunteer. Your child will not lose any benefits or rights; your child would normally have if you choose not to volunteer your child. You can stop your child's participation in the study anytime and still keep the benefits and rights your child had before volunteering. If you choose to not have your child volunteer, it will not affect your child's ability to stay in the preschool program.

IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?

If you do not want your child to be in the study, there are no other choices except not to take part in the study.

WHAT WILL IT COST YOU TO PARTICIPATE?

There are no costs associated with taking part in the study.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?

Your child will not receive any rewards or payment for taking part in the study.

WHO WILL SEE THE INFORMATION THAT YOU GIVE?

We will make every effort to keep confidential all research records that identify your child to the extent allowed by law.

Your child's information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. Your child will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your child's name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information for your child, or what that information is. All information collected will be stored at the University of Kentucky and will be kept for 6 years after the completion of the study.

We will keep private all research records that identify your child to the extent allowed by law. However, there are some circumstances in which we may have to show your child's information to other people. For example, the law may require us to show your child's information to a court. Also, we may be required to show information which identifies your child to people who need to be sure we have done the research correctly; these would be people from such organizations as the University of Kentucky.

CAN YOUR TAKING PART IN THE STUDY END EARLY?

If you decide to allow your child to take part in this study, you have the right to decide at any time that you would like your child to no longer continue with the study. Your child will not be treated differently if your child decides to stop taking part in the study.

The individuals conducting the study may need to withdraw your child from the study. This may occur if your child is not able to follow the directions they are given if they find that your child being in the study is more risk than benefit to your child. There will be no consequences if your child withdraws or if the individual conducting the study may need to withdraw your child from the study.

WHAT IF NEW INFORMATION IS LEARNED DURING THE STUDY THAT MIGHT AFFECT YOUR DECISION TO PARTICIPATE?

If the researcher learns of new information in regards to this study, and it might change your willingness to stay in this study, the information will be provided to you. You may be asked to sign a new informed consent form if the information is provided to you after your child has joined the study.

WHAT ELSE DO YOU NEED TO KNOW?

There is a possibility that the data collected from your child may be shared with other investigators in the future. If that is the case the data will not contain information that can identify your child unless you give your consent or the UK Institutional Review Board (IRB) approves the research. The IRB is a committee that reviews ethical issues, according to federal, state and local regulations on research with human subjects, to make sure the study complies with these before approval of a research study is issued.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?

Before you decide whether to accept this invitation to allow your child to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Rebecca Crawford at (859) 257 - 7732. If you have any questions about your child's rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the

University of Kentucky between the business hours of 8 am and 5 pm EST, Mon-Fri. at 859-257-9428 or toll-free at 1-866-400-9428.

If you decide to allow your child to participate in this study, please sign below and return to your child's teacher. Your child's teacher will return the form to Rebecca Crawford, who will make a copy of the form and send it to you.

You are the participant or are authorized to act on behalf of the participant. You have read this information, and you will receive a copy of this form after it is signed.

Signature of research subject or (if applicable:)
*research subject's legal representative

Date

Printed name of research subject and (if applicable:)

*Printed name of research subject's legal representative

APPENDIX C

Coaching Notes and Feedback Form – Constant Time Delay

Coaching Notes and Feedback Form – Constant Time Delay

Teacher: _____ Skill: _____

Date: _____ Time: _____

Conducted - ✓						Steps
Trial						
1	2	3	4	5	6	
						1. Activity/materials are prepared.
						2. Teacher has clipboard and writing utensil.
						3. Get the attention of the learner.
						4. Present the child with an antecedent or task request that sets the occasion for the child to respond.
						5. Wait a set amount of time to see what the child will do.
						6. Provide the child with the type of prompt that will help the child respond correctly (unless the child responds correctly on his own).
						7. When the child responds correctly, provide the consequence (this may consist of materials and/or verbal feedback).
						8. Record data.
						Child's Response

Key: Plus (+) sign indicates correct; minus (-) sign indicates incorrect; Zero (0) indicates no response

<p><u>Coaching Notes:</u></p> <p>+Positive Example:</p> <p>-Suggestion for Improvement:</p>	<p><u>Teacher's thoughts:</u></p>
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APPENDIX D

Coaching Notes and Feedback Form – Enhanced Milieu Teaching

Coaching Notes and Feedback Form – Enhanced Milieu Teaching

Teacher: _____ Skill: _____

Date: _____ Time: _____

Conducted - ✓						Steps
Trial						
1	2	3	4	5	6	
						1. Activity/materials are prepared.
						2. Teacher has clipboard and writing utensil.
						When child shows interest in something in the environment, teacher establishes joint attention
						3. Teacher gives the verbal “mand” or asks a question.
						4. Wait a defined number of seconds (e.g., 3 seconds) for the child to provide the target response
						5. Give the child access to what he/she makes request
						6. If the child fails to respond or the response is incorrect, model the response for the child
						7. Wait a define number of seconds (e.g., 3 seconds) for the child to imitate the target response
						8. Reinforce the child when target response is made
						9. Record data.
						Child’s Response

Key: Plus (+) sign indicates correct; minus (-) sign indicates incorrect; Zero (0) indicates no response

<p><u>Coaching Notes:</u></p> <p>+Positive Example:</p> <p>-Suggestion for Improvement:</p>	<p><u>Teacher’s thoughts:</u></p>
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APPENDIX E

Coaching Notes and Feedback Form – System of Least Prompt

Coaching Notes and Feedback Form – System of Least Prompts

Teacher: _____

Skill: _____

Date: _____

Time: _____

Conducted - ✓						Steps
Trial						
1	2	3	4	5	6	
						1. Activity/materials are prepared.
						2. Teacher has clipboard and writing utensil.
						3. Get the attention of the learner.
						4. Wait predetermined number of seconds for child to complete the step of the task independently.
						5. If the child does not do so within the designated time, prompt the child with the least intrusive prompt.
						6. Wait for the child to respond
						7. If the child does not do so, prompt the child with the most intrusive prompt (controlling prompt).
						8. Give consequence for responding at any prompt level.
						9. Use sequence for each step (if chained task).
						10. Record data.
						Child's Response

Key: I, independent; VG, verbal/gesture; P, physical; 0, no response.

<p><u>Coaching Notes:</u></p> <p>+Positive Example:</p> <p>-Suggestion for Improvement:</p>	<p><u>Teacher's thoughts:</u></p>
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APPENDIX F
Outline for Training

Outline for Training

Date:

Start/End Time:

Directions: Check off each item as it is discussed during training session.

1. Explanation of Outline for Training sheet.
2. Purpose of Study
3. How systematic teaching strategy will fit into existing classroom activities
4. Explanation of systemic teaching strategy
 - a. Outline of constant time delay provided
5. Intervention Plan developed by teacher.
6. Role-Play of teaching strategy.
 - a. Researcher provides feedback
 - b. Checklist shared with teachers on implementation of systematic teaching strategy.
7. Introduction of Video Training
 - a. Intervention Plans distributed
 - b. Discussion of ways to implement strategies
8. Data Collection discussed
 - a. Data collection sheet distributed
 - b. Data collected on each video
 - c. Results and feedback given by researcher
9. Introduction of 'coaching'
 - a. How this will occur?

APPENDIX G
Intervention Plan

Intervention Plan

Child's Name: _____

Skill: _____

Before	Possible Behavior Responses (Priority Skill)	After
1. When	Correct Response (+)	Correct Response(+)
2. Where		
3. With What		
4. How	Incorrect Response (-)	Incorrect Response (-)
<ul style="list-style-type: none"> • Establish joint attention • Establish topic • Make request in format child can understand • Wait for child to process 		

APPENDIX H

Ideas of Implementing Strategy

Ideas for Implementing Strategy

Target Skill: _____ Strategy:

Activity	Materials Needed:

APPENDIX I

Teacher's Satisfaction Survey

Teacher's Name: _____

Date: _____

Strategy Mastered: _____

To what extent do you believe your child made progress on the target skill using the strategy?

None	A little	Some	A lot	Mastered
1	2	3	4	5

Comment: _____

How likely would you be to try another strategy if the one you were using did not work?

Not at all Interested	Not Very Interested	Neutral	Somewhat Interested	Very Interested
1	2	3	4	5

Comment: _____

To what extent do you believe that the strategy was easy to implement in your class?

Very Hard	Hard	Neutral	Easy	Very Easy
1	2	3	4	5

Comment: _____

How likely are you to use this strategy in the future?

Never	Rarely	Every Once in a While	Sometimes	Almost Always
1	2	3	4	5

Comment: _____

How likely are you to teach others about the strategies?

Never	Rarely	Every Once in a While	Sometimes	Almost Always
1	2	3	4	5

Comment: _____

APPENDIX J

Teacher's Satisfaction Survey – End of Project

Please answer the following questions by circling your response.

The training helped to facilitate my understanding the teaching strategy.	Strongly Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Strongly Agree
The videos used during the training helped to facilitate my understanding the teaching strategy.	Strongly Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Strongly Agree
The intervention plan completed during the training helped to facilitate my understanding the teaching strategy.	Strongly Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Strongly Agree
The coaching sessions following each observation helped to facilitate my understanding the teaching strategy.	Strongly Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Strongly Agree
The coach was knowledgeable in the content.	Strongly Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Strongly Agree
I felt comfortable asking the coach questions.	Strongly Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Strongly Agree
The feedback given to be by the coaching was useful.	Strongly Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Strongly Agree

Note. The coach is referencing Rebecca Crawford.

I will continue to use the information I learned from this project in my classroom.

Never	Rarely	Every Once in a While	Sometimes	Almost Always
1	2	3	4	5

I would take part in this project again.

Not at all Interested	Not Very Interested	Neutral	Somewhat Interested	Very Interested
1	2	3	4	5

Any additional information/comments you would like to share about this project:

Thank you!

APPENDIX K

Coaching Protocol Sheet

Coaching Protocol

Teacher Name: _____

Date: _____

Step	Completed:	
1. Greet the teacher.	Yes	No
2. Example purpose of coaching session and give teacher the Coaching Protocol to complete.	Yes	No
3. Review Coaching Notes and Feedback Form – specific fidelity of implementation section.	Yes	No
4. Ask teacher for her thoughts on how implementing the target behavior is going.	Yes	No
5. State a positive example of implementation of the target behavior.	Yes	No
6. Give one concrete suggestion of how to improve	Yes	No
7. The consultant approaches the session as a partner with the teacher in a collaborative manner (i.e., sets positive tone, gives positive feedback, guides teacher through questioning, shares equally in the conversation)	Yes	No

Appendix L
Top Five Tips

Top Five Tips

1. *Support of Head Start agency, center and director.*

In order to complete the current study, you need to have the support of a local Head Start agency, center, and center director. Their support was important in order to help get the study started and moving along.

2. *Develop rapport with teachers.*

One of the most important things a researcher could do is to develop rapport with their teachers. The researcher in the current study is a preschool teacher herself, so this allowed her to better understand the demands of teaching preschool. The researcher started this study with an open-mind and knew that the teachers may not be willing or wanting to participate in the study but rather were told they had to participate.

3. *Help show teachers how this will help their students.*

The researcher knew she had to have the teachers buy into the study in order to make it work. In the current study the researcher focused on showing the teachers how easy and fast the systematic teaching strategies are to implement, and how they strategies *can* help their students.

4. *Flexibility.*

Another huge thing to keep in mind when conducting the current study is to keep flexibility in mind. The researcher in the current study worked around the teachers' classroom schedules. The researcher found this was another way to help build that rapport with the teachers. While it may not always be possible to work around the teachers' schedules, keep in mind that it will cause more damage in your relationship with the teachers if you ask them to move everything around for you.

5. *Understand the teachers' and what they bring to the table.*

Before starting the current study, the researcher wished she knew more about the teachers' and the lives and backgrounds. The researcher gathered basic demographic information in the beginning but that information really does not show *who* the teacher is. As the study continued and the teachers and researcher's relationship blossomed, the researcher learned about their home lives and the others things that can effect their teaching and the attitudes in the classrooms.

Appendix M
Budget Analysis

Budget Analysis

Budget

Local Mileage @ 0.535 per mile		\$240.11
Participant Support Cost for Teaching Training Sessions		\$120.00
Reliability data collectors @ \$11.00 X 22 hours		\$242.00
Supplies for teaching classrooms \$100.00 x 4		\$400.00
Total Costs		\$1,002.11

Budget Rationale

Local Mileage

Funds were requested to pay for mileage for the researcher to visit the center throughout the study. The estimated mileage round trip is 10.2 miles. The researcher will be traveling to the site four times per week for 11 weeks; the estimated total mileage is 448.8 miles.

Participant Support Cost for Teaching Training Sessions

Funds were requested to purchase supplies and materials needed to complete four teacher training sessions at the beginning of the study and eight additional trainings throughout the study. The supplies and materials included: making copies of materials, providing teachers with pens and handouts.

Reliability Data Collector

Funds were requested to pay for one doctoral study data collector in this current study. The student was paid \$11.00 per hour. The individual will help with procedural reliability data collection once per week for 11 weeks.

Supplies for Teacher Classrooms

Funds were requested to purchase classroom incentives for teacher participants. Each classroom was provided with \$100 worth of supplies to be used in their classroom.

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Vita

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