

## ABSTRACT

### A Comparison of Positive Practice and Functional Communication Training in the Treatment of Challenging Behavior

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The purpose of this thesis was to compare positive practice and a function-based intervention in reducing challenging behaviors. The present thesis included a systematic review of the literature and a single-case research study. The systematic review was conducted to identify and synthesize the existing literature on the use of positive practice to reduce challenging behaviors in children with disabilities. The database search resulted in the identification of 30 studies that have evaluated the efficacy of positive practice in reducing challenging behavior for children with developmental disabilities. The purpose of the single-case research study was to compare the efficacy of functional communication training and positive practice. One 7-year-old with autism spectrum disorder (ASD) participated in the study. The study used an alternating treatment design to compare positive practice and functional communication training. The results of the study indicated that functional communication training was more effective at reducing challenging behaviors than positive practice.

*Keywords:* positive practice, challenging behavior, functional communication training, function-based interventions

A Comparison of Positive Practice and Functional Communication Training in the Treatment of  
Challenging Behavior

by

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## TABLE OF CONTENTS

|                                      |      |
|--------------------------------------|------|
| ACKNOWLEDGEMENTS .....               | vii  |
| DEDICATION .....                     | viii |
| CHAPTER ONE .....                    | 1    |
| Introduction.....                    | 1    |
| Impact of Challenging Behavior ..... | 1    |
| Applied Behavior Analysis (ABA)..... | 2    |
| CHAPTER TWO .....                    | 9    |
| Review of the Literature .....       | 9    |
| Methods.....                         | 9    |
| Outcomes .....                       | 12   |
| Results.....                         | 12   |
| Discussion .....                     | 15   |
| CHAPTER THREE .....                  | 17   |
| Experimental Methods.....            | 17   |
| Methods.....                         | 17   |
| Experimental Design.....             | 19   |
| Procedures.....                      | 20   |
| CHAPTER FOUR.....                    | 25   |
| Results.....                         | 25   |
| Challenging Behavior .....           | 25   |
| Appropriate Communication .....      | 26   |
| Task Completion .....                | 26   |
| CHAPTER FIVE .....                   | 28   |
| Discussion .....                     | 28   |
| Summary of Results.....              | 28   |
| Limitations .....                    | 29   |
| Directions for Future Research ..... | 30   |
| Implications for Practice .....      | 30   |
| Conclusions.....                     | 31   |

## LIST OF FIGURES

|                  |    |
|------------------|----|
| FIGURE A.1 ..... | 38 |
| FIGURE A.2 ..... | 39 |
| FIGURE A.3 ..... | 40 |
| FIGURE A.4 ..... | 41 |

## LIST OF TABLES

|                 |    |
|-----------------|----|
| TABLE A.1 ..... | 33 |
|-----------------|----|

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## CHAPTER ONE

### Introduction

#### *The Impact of Challenging Behavior*

##### *Definition and Prevalence*

Challenging behavior can be defined as anything that reduces a child's access to learning, causes harm to the child or others, or interferes with social interactions (Kaiser & Rasminsky, 2007). Challenging behaviors are exhibited in many forms such as aggression, self-injury, noncompliance, stereotypy, and destruction. Previous studies have shown between 10-20% of individuals with intellectual disabilities, approximately 10% of children with a learning disability, 25% of children with developmental delays, and 53% of individuals diagnosed with autism spectrum disorder (ASD) engage in challenging behaviors on a regular basis (Baker, Blacher, Crnic, & Edelbrock, 2002; Emerson et al., 2001; Mazurek, Kanne, & Wodka, 2012; McClintock, Hall, & Oliver, 2003). Given the prevalence of challenging behaviors in individuals with intellectual and developmental disabilities, it is important to understand how challenging behavior affects their lives on a day-to-day basis.

##### *Impact of Challenging Behavior*

Challenging behaviors can drastically impact a child's access to educational and social opportunities. When a child engages in challenging behavior, they are often redirected to a different activity or completely removed from the classroom (Gable, Bullock, & Evans, 2006; Horner, 2000). Approximately 14% of students served under

the Individuals with Disabilities Education Act (IDEA) in elementary and middle schools are suspended or expelled during their time at school (Department of Education, 2015). Without proper support, children with disabilities who exhibit challenging behavior are twice as likely to drop out of school (Gable et al., 2006). Therefore, children who engage in challenging behaviors are limited in their access to educational and social opportunities.

In addition to the impact challenging behavior has on the individual, challenging behavior can affect peers, family, and teachers. The majority of teachers report challenging behaviors cause stress (Westling, 2010). Teachers also report these behaviors cause other students to learn less (Westling, 2010). Parents of children that exhibit challenging behaviors often miss work and social functions to take care of their child, which can cause added stress and conflict (Vaughn et al., 2005). Parents of children with challenging behaviors also report feelings of isolation because their child's behavior makes it difficult to leave the home (Doubet & Ostrosky, 2015). These perspectives denote negative effects such as stress, isolation, and decreased learning opportunities in the lives of parents, teachers, and peers of children with challenging behavior.

### *Applied Behavior Analysis (ABA)*

#### *Theoretical Foundations*

Behaviorism refers to the study of behavioral science (Cooper, Heron, & Heward, 2007, p. 7). Behaviorism came about after John Watson published an article in 1913 discussing the theory of a predictable relationship between stimuli and responses. Rather than relying on the thought processes of individuals, Watson argued behaviorists should

only study observable behaviors. By studying the impact of antecedent events on behaviors, Watson explained that one could better predict and alter human behaviors (Cooper et al., 2007, p. 9). In 1938, B. F. Skinner wrote *The Behavior of Organisms*. Skinner's experiments, reported in the book, demonstrated that behavior is not only affected by its antecedents, but also by its consequences. By introducing his three-pronged theory, which included antecedents, behaviors, and consequences, Skinner challenged Watson's two-pronged theory in understanding behavior. Skinner's theory, known as radical behaviorism, became the basis for ABA (Cooper et al., 2007, p. 10-11).

ABA is the use of interventions based on theories of learning to increase or decrease socially significant behaviors (Cooper et al., 2007, p. 2). In 1968, the *Journal of Applied Behavior Analysis* published an article by Baer, Wolf, and Risley (1968) which laid out the seven dimensions of applied behavior analysis (ABA) that are now used as the foundation for all those who practice ABA. The seven principles included in this article advise ABA research must be applied, behavioral, analytic, technological, conceptual, effective, and generalizable. When developing an applied behavior analytic intervention, the target behavior must be socially significant (e.g., challenging behavior). Applied behavior analysts investigate interventions that produce meaningful changes in socially significant, observable behaviors. In order to create meaningful changes, these interventions are typically conducted in applied settings rather than a laboratory. Applied research strives to identify variables that may alter an individual's behavior in order to help them function better within society (Baer, Wolf, & Risley, 1968).

### *Effectiveness of Interventions Based on ABA*

Ample research indicates educational and behavioral interventions based upon ABA are effective in improving outcomes for individuals with disabilities (Matson et al., 2011). Applied behavior analytic interventions are consistently identified as evidence-based practices in improving the social, communicative, and challenging behaviors for individuals with ASD (National Autism Center, 2015; Wong et al., 2015). ABA interventions are also effective in reducing challenging behavior in children with intellectual disabilities (Heyvaert, Maes, & Onghena, 2010). Based on the findings in these reviews of the literature, educational and behavioral interventions based on ABA are an effective method for improving the behavior of children with intellectual and developmental disabilities and should be considered when selecting treatments for challenging behavior.

### *Function-Based Interventions*

Behaviors, or any action exhibited by a living organism, are all influenced by their environment. Behaviors may either be respondent or operant. Respondent behaviors are those that occur based solely on what precedes that particular behavior. These behaviors are typically referred to as reflexes because they occur automatically, such as sneezing. Operant behaviors are more or less likely to occur in the future based on their previous consequences (Cooper et al., 2007, p. 27-31). Challenging behaviors consistently followed by similar consequences may be more likely to occur again in the future (Cooper et al., 2007, p. 34). Therefore, challenging behaviors, such as hitting and screaming, are often operant behaviors (Iwata et al., 1994; Carr & Durand, 1985). For example, if a child screams at an adult and the adult always walks away as a result of the

screaming, the child is more likely to scream in the future in order to encourage the adult to leave. In the interest of establishing effective treatments to reduce challenging behaviors, it is important to identify the operant function, or reason, for the behavior's occurrence.

One method used in identifying the operant function of a challenging behavior is a functional analysis (FA; Iwata et al., 1994). An FA determines if a behavior is maintained by positive, negative, or automatic reinforcement. The play, demand, attention, tangible and alone conditions are often used to assess which type of reinforcement maintains the challenging behavior. Once data are collected from each condition, data may display a pattern, which suggests challenging behaviors are maintained through access to attention, escape from demands, access to tangible items, or automatic reinforcement (Bloom et al., 2011). There are concerns over the time constraints and high levels of expertise needed to implement FAs. However, they are often recommended due to the large amount of evidence to support their use (Hanley, Iwata, & McCord, 2003). After the function of the challenging behavior is identified through an FA, an alternative, socially appropriate behavior can be taught to replace the challenging behavior. This is called a function-based intervention (Cooper et al., 2007, p. 503).

Function-based interventions are effective in reducing challenging behaviors of individuals with emotional and behavior disorders, ASD, intellectual disability, and other developmental disabilities (Dunlap & Fox, 2011; McKenna, Flower, & Adamson, 2016; Carr & Durand, 1985). One primary example of a function-based intervention is functional communication training (FCT). FCT is an intervention that teaches an

individual an alternative, socially appropriate communicative response in order to produce the same reinforcement that was maintaining challenging behavior (Tiger, Hanley, & Bruzek, 2008). FCT has successfully reduced instances of challenging behavior while simultaneously increasing communication (Carr & Durand, 1985). For example, Wood, Ferro, Umbreit, and Liaupsin (2011) taught three children to communicate rather than engaging in challenging behavior at school by using individualized function-based interventions. All three children showed an improvement in communication and on-task behavior and a decrease in disruptive behavior (Wood, Ferro, Umbreit, & Liaupsin, 2011). Despite the success found with individualized function-based interventions, conducting functional behavioral assessments can be difficult (Tiger et al., 2008). Function-based interventions are infrequently used in applied settings, likely due to the time needed to implement function-based interventions and the lack of properly trained personnel (Dunlap & Fox, 2011).

### *Positive Practice*

Positive practice is repeated practice of an appropriate behavior contingent on the problem behavior's occurrence (Cooper et al., 2007, p. 342). Positive practice is derived from Foxx and Azrin's 1971 study, which used overcorrection techniques for rapid toilet training. This study evaluated a treatment package that used both restitutional overcorrection, where objects were restored to a state equal to or better than before a challenging behavior occurred, and positive practice, as defined above. There was an immediate 90% reduction of incontinence with this intervention, which reached near zero levels of occurrence over time (Foxx & Azrin, 1971). Other experiments which utilized positive practice alone have also demonstrated success in reducing other types of

challenging behaviors such as enuresis, stereotypy, aggression, and noncompliance (Epstein, 1974; Carey & Bucher, 1983; Doleys, Wells, Hobbs, Roberts, & Cartelli, 1976). For example, Peters and Thompson (2013), used positive practice to increase appropriate play and decrease stereotypy for four boys. After the occurrence of stereotypy, each individual was guided to appropriately interact with an item for 30 seconds. This sequence of positive practice decreased stereotypy and increased appropriate toy engagement for all three individuals (Peters & Thompson, 2013). There are a number of possible reasons that positive practice is effective. One reason is that positive practice interrupts the occurrence of challenging behavior (Epstein et al., 1974). Alternatively, positive practice may teach a new appropriate behavior (Azrin et al., 1975; Azrin & Powers, 1975). Finally, contingent positive practice of a behavior may reduce the future likelihood of the child choosing to engage in challenging behavior (Carey & Bucher, 1981). Repeatedly practicing a behavior may be aversive for some people, so children may choose to not engage in the challenging behavior instead of repeatedly practicing alternative behaviors.

IDEA (1997) requires evidence-based behavioral supports to be provided for students with disabilities who engage in challenging behavior. Experts often recommend using proactive measures such as reinforcement and differential reinforcement of other behaviors due to the research supporting these interventions (Bradshaw, Koth, Thornton, & Leaf, 2009; Bradshaw, Mitchell, & Leaf, 2010). However, interviews with teachers found that majority of teachers use reactive measures such as positive practice to change problem behaviors instead of preventative interventions or reinforcement (Nungesser & Watkins, 2005; Snell et al., 2011). Teachers have also reported a lack of necessary skills

to provide individualized interventions to their students, such as functional communication training (Oswald et al., 2005; Snell, 2012). Experts have recently started recommending using positive practice in positive behavioral support treatment within schools (McLeod et al., 2016; Peters & Thompson, 2013). With the requirement to implement evidence-based practices in schools, the frequent use of positive practice interventions by teachers and the recommendations by researchers to include positive practice as part of a positive behavioral support treatment, there is further need to research the effectiveness of positive practice in reducing challenging behaviors.



## CHAPTER TWO

### Review of the Literature

#### *Methods*

The purpose of this review was to systematically review and summarize current positive practice literature and identify directions for future research.

#### *Search Criteria*

A systematic electronic database search was conducted using the following databases: Educational Resources Information Clearinghouse (ERIC), Academic Search Complete, Education Research Complete, PsycARTICLES, Psychological and Behavioral Sciences Collection, and PsycINFO. The following search terms were simultaneously entered into the search field using the following Boolean Operators and truncation: “positive practice,” “simple correction,” *or* “overcorrection.” Each of the 1,425 resulting articles was reviewed for inclusion in the present review based on the inclusion criteria below.

#### *Inclusion Criteria*

In order to be included in the literature review, a study had to meet the following criteria: (a) the study was published in a peer-reviewed journal, (b) the study was published in English, (c) some or all of the participants had a diagnosed disability and were younger than 21 years of age, (d) the study evaluated the efficacy of positive practice to reduce a challenging behavior, (e) positive practice was used alone, with safety procedures, and/or with reinforcement. Studies that included both participants

with and without disabilities and participants both older and younger than 21 had to present the data so that the reader could identify the data for participants who met the inclusion criteria.

The title and abstract of all 1,425 studies were reviewed based on the inclusion criteria and 1,236 were removed. The full texts of the remaining 189 studies were then evaluated, and 28 studies with a total of 30 experiments met all inclusion criteria. Data were extracted from all 28 included studies based on the categories described below.

### *Data Extraction*

Data were extracted from the studies in order to synthesize the body of research. Multiple categories of data were extracted from each of the 28 articles that met the inclusion criteria: (a) participant characteristics, (b) methodological characteristics, and (c) outcome.

### *Participants*

The reviewer recorded information about participant characteristics from each study. Participant characteristics included each participant's age, gender, and disability diagnosis. Participants' gender was recorded as male, female, or unreported. Studies that reported the age of participants were marked for the total number of participants in six different age categories: zero to three years, four to seven years, eight to 12 years, 13 to 18 years, 19 to 21 years, and unreported. The total number of participants in each of the following disability categories was recorded: autism spectrum disorder (ASD), intellectual disabilities (ID), Down syndrome, or other. If a participant had multiple diagnoses, they were included in multiple categories.

The reviewer also recorded information about participants' challenging behaviors from each study. Challenging behavior topographies were marked under thirteen problem behavior categories: vocal stereotypy, physical stereotypy, screaming, hitting, biting, kicking, spitting, pinching, self-injury, elopement, hair pulling, noncompliance, or other. If a participant had multiple challenging behaviors, only those targeted in the intervention were marked.

### *Methodological Characteristics*

The methodological design and intervention implementation of each study was reviewed. First, the design of the study was recorded. Specifically, the rater indicated if the study utilized a single subject or group design, and which specific design was used (e.g., reversal design). Studies using a design that is considered experimental according to the What Works Clearinghouse Standards (What Works Clearinghouse, 2013) were coded as experimental. For example, a study including an ABAB design was considered an experimental reversal design. A study with an ABCD design, however, was not considered experimental.

Once the experimental design of the study was coded, characteristics of the intervention were outlined. Specifically, the rater determined if the study included an FBA or FA. The rater also identified whether positive practice was used alone or with reinforcement. It was then noted if positive practice was compared to another intervention. If the function of a challenging behavior was mentioned, the rater noted the function, otherwise it was labeled "unknown". A study that specifically used reinforcement for appropriate behaviors (e.g., contingent praise) with positive practice would be marked as positive practice plus reinforcement. If there was no mention of

reinforcement, the study was rated as positive practice alone. If another intervention such as social punishment or time out was used in separate sessions, then the rater coded the study as positive practice compared to another intervention and made a note about the other interventions used. The rater then noted either the number of repetitions or the duration and process of positive practice used. Studies that reported a generalization phase or a maintenance phase were also noted.

The rater recorded the implementer and setting for each study. Intervention implementers were marked under one of seven categories: ABA therapists, graduate assistants, undergraduate students, teachers, parents, peers, or other. If a study included more than one type of implementer, both of them were marked. Similarly, interventions were coded as taking place in a clinic, school, home, institutional, or other setting. If a study was conducted in multiple settings, all settings were included in coding.

### *Outcomes*

The outcome of each study was examined and coded by the rater. Studies were inspected for initial outcomes, generalization across settings, and maintenance over time. A study's initial outcomes could yield an improvement in challenging behavior, no change, or a counter-therapeutic effect. Improvement was determined by the author's report for each study.

### *Results*

A total of 28 studies with 30 experiments (one study included three experiments) met the inclusion criteria for the literature review. Table A.1 in Appendix A provides a summary of the main components of each study included.

### *Participants*

A total of 51 participants were included in the 30 experiments. Of the 51 participants, 34 were male (67%) and 17 were female (33%). Majority of the participants were between the ages of eight and 12 (19 participants, 37%) while 16 participants (31%) were between the ages of four and seven. The two main diagnoses of participants were ID (41 participants, 80%) and ASD (20 participants, 39%). Of the 51 participants, 21 (41%) had multiple diagnoses. Other diagnoses include schizophrenia, cerebral palsy, blindness, congenital heart condition, hydrocephaly, pervasive developmental disorder, attention deficit disorder, emotional disturbance, and deafness. The most common forms of challenging behavior targeted in these studies were stereotypy (32 participants, 63%) and self-injury (13 participants, 25%). Other topographies included screaming, hitting, kicking, biting, pinching, hair pulling, noncompliance, off-task behavior, and throwing objects. Only one study conducted an FBA, which identified an automatic function of challenging behavior.

### *Methodological Characteristics*

The majority of the studies (67%) used positive practice by itself, with no additional intervention. There were 11 studies (37%) that utilized positive practice with reinforcement. One experiment (3%) compared positive practice alone and positive practice plus reinforcement. Of the studies that used positive practice plus reinforcement, six used reinforcement for periods of time without challenging behavior, four used contingent reinforcement for each instance of appropriate behavior, and one used noncontingent reinforcement. Of the 30 experiments, 18 (60%) used contingent practice of an unrelated behavior (e.g., arm movements), for positive practice. The remaining 13

experiments (40%) practiced appropriate behaviors. Appropriate behaviors were selected based on the target challenging behavior and the child's abilities. Most of the experiments were conducted in a classroom setting (26 experiments, 87%). The remaining four studies (13%) were primarily conducted in institutional and hospital settings.

### *Outcomes*

Positive practice was reported to be effective across the vast majority of the participants included in this review. Of the 30 experiments conducted, 28 (93%) reported decreases in challenging behavior with positive practice. Of the remaining two experiments, one reported no change in behavior across all participants. The other reported improvement in two out of three participants and counter-therapeutic results with one participant.

There were 14 experiments (47%) that compared positive practice to other interventions. The majority of these experiments (10 experiments, 71%) compared positive practice to a punishment procedure (e.g., verbal reprimands, time out, sensory extinction, or restraint). One of these studies found that a different intervention (facial screening) was more effective than positive practice, and the remaining nine studies found that positive practice was more effective. Only three of the 14 experiments (21%) compared positive practice to a reinforcement-based procedure. Each of these compared positive practice alone to DRO. All three studies found positive practice alone to be more effective in reducing challenging behavior than DRO.

A total of eight (27%) experiments measured generalization across settings, implementers, or activities. Of those experiments, seven (88%) showed a continued

reduction in challenging behavior across settings, implementers, or activities. One study saw a return to baseline during generalization. Nine (30%) experiments measured maintenance over the course of one year or less. All nine experiments measured maintenance between an extension of two sessions and one year. All nine experiments found a maintained reduction in target challenge behaviors over time.

### *Discussion*

The database search in this review yielded 28 studies that used positive practice overcorrection to reduce challenging behaviors. Positive practice was often used to reduce stereotypic or self-injurious behaviors in with children diagnosed with ID or ASD. Positive practice was often used in conjunction with verbal praise. Most of the studies took place in schools. Only one experiment included an FA in order to determine the function of the challenging behavior. Three experiments compared positive practice to a positive reinforcement procedure (DRO). Each of the three experiments found that positive practice was more effective in reducing challenging behaviors than DRO. Given the results of current literature, more research is needed to understand the effectiveness of positive practice.

### *Directions for Future Research*

Of the 28 studies, only one conducted an FA to determine the function of challenging behavior before implementing an intervention. There were only three experiments, all from the same study, that compared positive practice to a reinforcement-based intervention, which is the most research-based method in reducing challenging behaviors (Heyvaert, Maes, & Onghena, 2010; Machalicek et al., 2007; Oliver, 1997).

While the vast majority of studies resulted in decreases challenging behaviors, there were no studies that compared positive practice to a function-based intervention. Further research on the comparison of function-based interventions to positive practice may provide better insight into the efficacy and use of positive practice within schools to alter challenging behaviors.



## CHAPTER THREE

### Experimental Design

#### *Methods*

##### *Participant Description*

Two participants were recruited from a university-affiliated ABA clinic. Two males were recruited, both age seven. Based on inclusion criteria, one participant took part in all phases of the study. The second participant did not engage in frequent challenging behavior and therefore did not meet the inclusion criteria for the study.

The participant included in this study, Pierce, was diagnosed with ASD at age five by his developmental pediatrician. Pierce communicates verbally by using complete sentences. Based on parent interviews and notes from previous therapists, it was determined that Pierce frequently engaged in screaming, using verbal threats such as, “I’m going to pinch myself,” and hitting himself and others.

##### *Settings and Materials*

All sessions were conducted in a university-affiliated ABA clinic. Each room contained at least one table and two chairs, and a video recording device. Session materials included data sheets and pens for all data collectors, a stopwatch, action figures, small toy cars, small LEGO© blocks, crayons, and paper.

## *Measurement*

*Data collection.* Data were collected on the frequency of challenging behaviors for 10-s intervals during each five-minute session. A minimum of five data points per condition per phase were included in order to meet What Works Clearinghouse experimental design standards (What Works Clearinghouse, 2016). Challenging behaviors for Pierce included screaming, verbal threats, and hitting. A scream was defined as a vocalization at a volume above conversational level, not pertaining to play, that lasted for two seconds or more. Hitting was defined as making or attempting to make forceful contact with another person using his hand. Verbal threats included any statement directed at self or others that contained content about physically harming himself or others (e.g., I'm going to hit you.). Data were also collected on the frequency of appropriate communication and appropriate alternative behaviors throughout each five-minute intervention session. Since Pierce was able to communicate in full sentences, appropriate communication was defined as independently saying, "I want a break please" without verbal prompting. Alternative appropriate behavior included correctly writing a letter and saying its name within two seconds of completely writing the letter without full physical prompting.

*Interobserver agreement.* To assess the reliability of data collection throughout the study, at least two observers independently collected data for at least 30% of the sessions conducted within each condition and in each phase. Observers recorded data using video recordings of the sessions. Interobserver agreement was calculated by dividing the number of agreements between observers by the total number of 10-s

intervals and multiplying the resulting number by 100. All phases of the study had an average IOA over 85%. The average IOA across all conditions was 95% (range 85%–100%).

*Treatment fidelity.* To ensure the proper implementation of each phase of the study, at least one observer not implementing the intervention independently rated the implementer on a researcher-developed task analysis of the procedures. Treatment fidelity data were collected for at least 30% of sessions for each condition and in each phase. Treatment fidelity for each intervention was calculated by a second data collector marking the implementer as “correct” or “incorrect” on each step of a task analysis sheet of the procedures. The percentage of steps implemented correctly was calculated for each session and then averaged across all sessions. Each phase of the study had average treatment fidelity over 85%. The overall average treatment fidelity across conditions was 96.52% (range 85.70%-100%).

### *Experimental Design*

The experimental design for this study was a randomized alternating treatments design. The design included four phases: (a) preference assessment, (b) baseline, (c) intervention, and (d) best intervention. During the intervention phase, FCT and positive practice were implemented within an alternating treatment design. The order of the sessions was randomized within each pair of sessions. Each session was five minutes in length with at least one minute between sessions.

### *Termination Criteria*

Sessions were terminated if Pierce's behavior became unsafe for himself, others, if he showed distress, or engaged in challenging behaviors beyond what was typical during a therapy session. No sessions were terminated during the study.

### *Procedures*

#### *Preference Assessment*

In order to determine highly and moderately preferred activities for each participant, a multiple stimulus without replacement preference assessment was conducted (DeLeon & Iwata, 1996). The data sheet for this preference assessment can be found in Appendix B on data sheet B.1. The preference assessment conducted with Pierce indicated that LEGO© blocks were a highly preferred item while action figures and toy cars were moderately preferred.

#### *Functional analysis*

The functional analysis consisted of four conditions: play, attention, tangible, and escape (Iwata et al., 1994; Northup et al., 1991). Condition order was randomly determined within each set. The procedures for each condition are described below. Treatment fidelity checklists for each FA condition can be found in Appendix B on data sheet B.2. Data sheets for each condition may also be found in Appendix B on data sheet B.3

*Play.* Pierce was provided with action figures and toy cars to play with. At the beginning of the session, the implementer indicated that she would play with Pierce. The implementer made positive verbal statements to Pierce at least once every 10 seconds. No demands were placed and all inappropriate behaviors were ignored.

*Attention.* Pierce was provided with action figures and toy cars to play with. The implementer indicated that Pierce could play with the toys while the implementer worked. The implementer ignored all non-target behaviors exhibited by Pierce. If he engaged in the target behavior, the implementer then provided attention for approximately 20 seconds and then returned to working. If the target behavior continued, the implementer kept providing attention until 20 seconds after the last target behavior was emitted.

*Tangible.* Pierce was provided with action figures, toy cars, and LEGO® blocks to play with. The implementer indicated that Pierce could play with the items. He was given 20 seconds of access to LEGO® blocks, and then the implementer blocked his access to the LEGO® blocks. All non-target behaviors exhibited by Pierce were ignored. If Pierce engaged in the target behavior, the implementer provided access to the LEGO® blocks for approximately 20 seconds and then blocked access again. If the target behavior continued, the implementer kept providing access to the highly preferred items until 20 seconds after the last target behavior was emitted.

*Escape.* Paper and crayons for writing letters were present during these sessions. Contingent on correct responses of writing a letter, the implementer provided mild verbal praise and presented another task. Contingent upon incorrect responses or

noncompliance, the implementer followed a least-to-most prompting hierarchy with three seconds in between each prompt. If Pierce exhibited the target challenging behavior at any time, the implementer removed all of the work materials and he received a break for twenty seconds. If the target behavior persisted, the implementer waited until twenty seconds after the last occurrence of the target behavior to represent the task. All non-target behaviors were ignored.

### *Baseline*

Based on the results of Pierce's FA, the baseline condition consisted of the same conditions as the escape condition during the FA.

### *Intervention*

The intervention phase consisted of two conditions: positive practice with reinforcement and FCT. The session order was randomized in sets of two. The procedures for each condition are described below.

*Positive practice with DRO.* The beginning of positive practice sessions followed the same procedures as the FA escape condition. Because of the high frequency of challenging behaviors emitted by Pierce during baseline, the implementer provided verbal praise for each 10 second interval he did not engage in the target challenging behavior (Gross, Farrar, & Liner, 1982; Kelly & Drabman, 1977; Luiselli, Pemberton, & Helfen, 1978; Signh, Dawson, & Gregory, 1980; Sisson, Van Hasselt, & Hersen, 1993; Wells et al., 1977). Verbal praise was meant to be a non-function-based reinforcement method. Upon occurrence of the target challenging behavior, the implementer interrupted the behavior and asked Pierce to begin practicing writing a letter while saying

its name. Pierce continued practicing until he had completed 5 repetitions without full physical prompting (Peters & Thompson, 2013; Sisson, Herson, & Van Hasselt, 1993). If he did not practice on his own, the implementer used graduated guidance until Pierce had fulfilled the requirements. No praise was given when positive practice was being implemented. The implementer then returned to providing verbal praise in the absence of the target challenging behavior. The treatment fidelity checklist for positive practice is found in Appendix B on data sheet B.4 and data sheets may be found on data sheet B.5.

*FCT.* The beginning of FCT sessions followed the same procedures as the escape condition of the FA. At the beginning of each session, the implementer first stated that Pierce could say “I want a break please” after writing one letter on his own. The implementer then presented the task of writing a letter of the alphabet. If Pierce did not comply, the implementer used least-to-most prompting with three seconds between each prompt. If he independently completed the task, the implementer then provided mild verbal praise and waited to see if he would ask for a break. If he did not ask for a break after three seconds, the implementer reminded them to ask for a break. The implementer used a progressive time delay starting with three seconds between each reminder. After Pierce independently asked for a break at each level of time delay (e.g., three seconds) three consecutive times without engaging in challenging behavior, the progressive time delay was increased by two seconds. Pierce continued to receive prompts at a five second time delay through the end of the study. After three prompts, if he did not ask for a break, the implementer presented a new task. At that point, Pierce could ask for a break at any point. If he asked for a break, the implementer provided a 20 second break from demands. All inappropriate behaviors were ignored. The treatment fidelity checklist for

FCT may be found in Appendix B on data sheet B.6 and data sheets may be found on B.5.

### *Best Intervention*

Based on the frequency of challenging behavior being less during FCT than positive practice, FCT was implemented during the best intervention phase with Pierce. Demand fading was used during the four sessions by doubling the number of required independent task completions each session, starting with one and ending with eight. Once Pierce had independently written the required number of letters, he was then able to ask for a break. Treatment fidelity sheets and data sheets for best intervention may be found in Appendix B on data sheet B.7 and B.5.



## CHAPTER FOUR

### Results

#### *Functional Analysis*

The FA indicated that Pierce's challenging behavior was maintained by escape from academic demands (Figure A.1). Pierce engaged in the highest frequency of challenging behavior during the escape condition ( $M = 10$  responses, range 0-12 responses). In comparison, the play condition was associated with lower frequency of challenging behavior ( $M = 0.40$  responses, range 0-5 responses). Similarly, the tangible condition was associated with a lower frequency of challenging behavior ( $M = 0.40$  responses, range 0-2 responses). Pierce did not engage in any challenging behaviors during the attention condition.

#### *Challenging Behavior*

##### *Baseline*

The escape condition from the FA served as the baseline for Pierce (Figure A.2). Pierce engaged in an average of 10 challenging behavior responses per baseline session (range 0-12 responses), which was associated with an increasing trend.

##### *Intervention*

Figure A.2 also displays the results of challenging behavior during the treatment comparison phase. This phase compared the frequencies of challenging behavior during positive practice and FCT. Pierce engaged in higher levels of challenging behavior

during positive practice ( $M = 8.57$  responses, range 0-35 responses) than in the FCT sessions ( $M = 1.29$  responses, range 0-3 responses). The positive practice condition was associated with large variability. Based on the data, FCT was more effective in reducing challenging behavior than positive practice.

#### *Best Intervention*

During the best intervention phase, Pierce did not engage in any challenging behaviors (Figure A.2).

#### *Appropriate Communication*

##### *Intervention*

Figure A.3 displays the results of the frequency of appropriate, independent communication during FCT and positive practice. Pierce independently communicated for a break an average of 1.71 times per session (range 0-3). There was no independent communication for a break during positive practice.

#### *Best Intervention*

Pierce did not independently communicate for a break during the best intervention phase. All instances of communication were first prompted by the implementer.

#### *Task Completion*

##### *Intervention*

Data were collected on the frequency of task completion during both FCT and positive practice (Figure A.4). Positive practice yielded an average of 13 completed tasks

per session (range 1-21 completed tasks). FCT resulted in fewer tasks completed per session than positive practice did ( $M = 5.71$  completed tasks, range 5-6 completed tasks).

### *Best Intervention*

The number of completed tasks for the best intervention phase was higher than the number completed in the FCT sessions and positive practice sessions in the previous phase ( $M = 16.75$  completed tasks, range 10-27 completed tasks, Figure A.4).

## CHAPTER FIVE

### Discussion

#### *Summary of Results*

The purpose of this study was to evaluate the effectiveness of positive practice in reducing challenging behaviors and to compare the effectiveness of positive practice to functional communication training. Although previous research has shown positive practice to be effective in reducing challenging behaviors, no studies have compared positive practice to a function-based intervention.

This study, much like previous research, found that positive practice was effective in reducing the frequency of challenging behavior in one seven-year-old male diagnosed with ASD when compared to baseline. However, FCT was found to be more effective in reducing the frequency of an escape-maintained challenging behavior than positive practice. It is likely that FCT was more effective at reducing challenging behavior because it targeted the function of the challenging behavior. Once communication was put into place in order to gain access to a break, it is hypothesized that the communicative response replaced the challenging behavior, resulting in fewer instances of challenging behavior. Although there were instances of challenging behavior during FCT, it should be noted that there were no discriminative stimuli used during this study to help Pierce distinguish between positive practice and FCT sessions. Due to the lack of discriminative stimuli, it may be the case that there were carry over effects from positive practice sessions to FCT sessions.

Data were also collected on appropriate, independent communication and task completion during both FCT and positive practice. The primary purpose of FCT is to replace challenging behaviors with appropriate forms of communication (Tiger, Hanley, & Bruzek, 2008). FCT resulted in more instances of independent, appropriate communication than positive practice.

Alternatively, positive practice resulted in an overall higher number of tasks completed than FCT in the comparison phase. Positive practice requires the client to repeatedly practice an appropriate behavior any time that the challenging behavior occurs (Cooper et al., 2007, p. 342). Because positive practice is not a function-based intervention, there was no way for the client to access a break when working. The absence of a break provided more time for the client to complete tasks. However, the highest number of task completions per session occurred during the best intervention phase, which consisted of FCT with demand fading. As the client progressed through each session of best intervention, the contingency for asking for a break was doubled. This meant that the client was required to complete a higher number of tasks before receiving a break, which resulted in more tasks being completed overall.

### *Limitations*

There were some limitations to consider within this study. Only one participant was included throughout the present study. This means that the comparisons found between FCT and positive practice are not yet generalizable to other populations, functions of behavior, or settings. Another limitation of the study is that multiple topographies of challenging behavior were targeted during baseline and intervention phases. Having multiple topographies makes data collection more difficult and provides

more opportunities for errors across observers. Moreover, multiple topographies of behavior may also be maintained by different functions, which would then alter the results of an FA and function-based intervention.

### *Directions for Future Research*

There are numerous directions for future research that could contribute to a better understanding of the use of positive practice to reduce challenging behaviors. It would be beneficial to continue comparing positive practice to FCT in order to replicate the findings of this study, as well as to make the comparison generalizable across participants, functions, topographies, and settings. Furthermore, future research could identify methods to select alternative behaviors that are most useful for the client.

### *Implications for Practice*

A majority of classroom educators are consistently using reactive measures such as positive practice with their students (Nungesser & Watkins, 2005; Snell et al., 2011). Experts are also increasingly suggesting the use of positive practice as a component of student behavioral packages (Bradshaw, Koth, Thornton, & Leaf, 2009; Bradshaw, Mitchell, & Leaf, 2010). This study indicates that FCT was more effective than positive practice in reducing challenging behavior. Data from this study also suggest that with demand fading in FCT, more tasks are able to be completed than in positive practice. Results from this study provide support for training classroom educators in FCT. The results may also discourage teachers from using reactive measures such as positive practice with their students and instead implement more proactive measures.

Furthermore, the methods of this study may also help therapists make more informed decisions about selecting appropriate behavioral plans for their clients.

### *Conclusions*

The present study found a gap in previous literature between positive practice and function-based interventions. The results of the study contribute to current literature on positive practice as it extends the understanding of the effectiveness of positive practice in comparison to other interventions. Findings in this study indicate a need for further research of the use of positive practice in comparison to function-based interventions. This study also identified the need for more research in regard to positive practice within a classroom, teacher usage of positive practice, and training possibilities for FCT within schools. The results of this study support previous findings that function-based interventions are effective in reducing challenging behaviors in individuals with developmental disabilities (Dunlap & Fox, 2011; McKenna, Flower, & Adamson, 2016; Carr & Durand, 1985).

## APPENDICES



## APPENDIX A

Table A.1

### *Literature Review Results*

| Study                      | Participants                                       | Challenging behaviors      | Experimental design    | Implementer and setting                         | Intervention procedures  | Outcome     | Generalization            | Maintenance       |
|----------------------------|--|----------------------------|------------------------|---|--|-------------|---------------------------|-------------------|
| Barrett & Shapiro, 1980    | Female, 7, Intellectual Disability (ID)            | Hair pulling               | Reversal               | Parents, home, school, and psychiatric hospital | Positive practice and positive practice plus verbalization. Practiced hair brushing for 2 minutes.   | Improvement | Yes, across contingencies | Yes, after 1 year |
| Barrett & Linn, 1981       | Male, 9, Cerebral Palsy                            | Toe-walking                | Reversal               | Physical Therapist, hospital gymnasium          | Positive practice and positive practice plus verbal corrections. Practiced at least 10 toe taps within 30 seconds  | Improvement | Yes, across settings      | No                |
| Barton & LaGrow, 1983      | 3 females, ages 5, 9, and 21, all ID and deafblind | Self-injury and aggression | Alternating treatments | Teacher, school                                 | Positive practice for aggression and self-injury. Functional Movement Training (FMT) with arms for 10 minutes (participant 1) and 20 minutes (participants 2 and 3). | Improvement | No                        | No                |
| Bierly & Billingsley, 1983 | Male, 6, Autism Spectrum Disorder (ASD)            | Stereotypy                 | Reversal               | Teacher, school                                 | Positive practice plus noncontingent reinforcement. Practiced appropriate toy play for 10-15 seconds.  | Improvement | No                        | No                |

(Continued)

| Study                             | Participants  | Challenging behaviors                           | Experimental design | Implementer and setting               | Intervention procedures  | Outcome  | Generalization           | Maintenance          |
|-----------------------------------|---|---|---------------------|---------------------------------------|--|--|--------------------------|----------------------|
| Carey & Bucher, 1983              | 4 males, 1 female, between ages 10 and 13, all ID                     | Noncompliance                                   | Multiple baseline   | AABA therapist, school or institution | Positive practice plus verbal reinforcement in varying lengths. Practiced appropriate activity participation for 30 seconds or 3 minutes.        | Improvement  | No                       | No                   |
| Charlop et al., 1988              | Male, 5, ID and female, 6, ASD and ID                                 | Aggression (female) and self-stimulation (male) | Reversal            | Psychologist, hospital                | Positive practice compared to verbal reprimand and time out. Repeated standing up and sitting down for 30 seconds.                               | Improvement  | No                       | Yes, over 3 sessions |
| Doleys et al., 1976               | 2 males and 1 female, 10, ASD (males), all ID, schizophrenia (female) | Noncompliance                                   | Reversal            | Unknown, school                       | Positive practice compared to social punishment and time out. Practiced appropriate play for 40 seconds.   | No change  | No                       | No                   |
| Epstein et al., 1974              | 2 males, 5 and 8, schizophrenia                                       | Stereotypy                                      | Multiple baseline   | Unknown, school                       | Positive practice alone in varying lengths. FMT for 2.5 minutes (hands) and 2 minutes (feet).  | Improvement  | No                       | No                   |
| Foxx & Azrin, 1973 (Experiment 2) | Female, 8, ID and congenital heart condition, blind, microcephaly     | Stereotypy                                      | Reversal            | Teacher, school                       | Positive practice alone. FMT of the head for 5, 2, or 20 minutes.  | Improvement  | Yes, across implementers | No                   |
| Gibbs & Luyben, 1985              | Male, 15, ID  | Self-injury                                     | Reversal            | Teacher, home and school              | Noncontingent and contingent positive practice. FMT of the arms for 5 minutes.   | Improvement  | Yes, across settings     | Yes, after 2 months  |
| Gross, Farrar, & Liner, 1982      | Male, 4, ID and cerebral palsy  | Hair pulling                                    | Reversal            | Teacher, school                       | Positive practice plus differential reinforcement of other behaviors (DRO) compared to facial screening plus DRO. FMT of the arms for 5 minutes. | Improvement, but facial screening was more effective | No                       | Yes, after 6 weeks   |

(Continued)

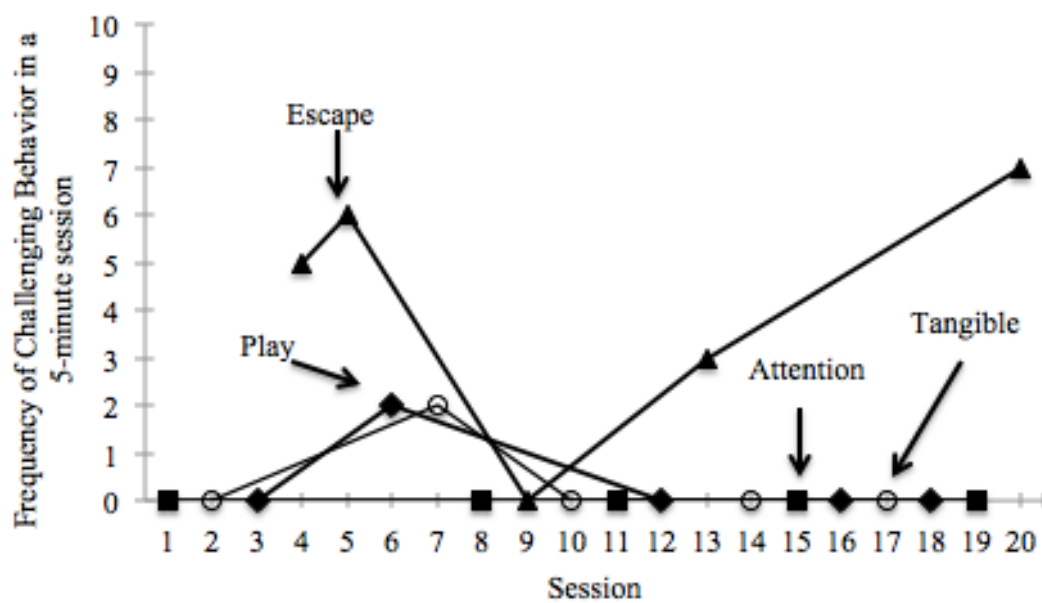
| Study                                 | Participants                                 | Challenging behaviors                          | Experimental design | Implementer and setting                                     | Intervention procedures  | Outcome   | Generalization                               | Maintenance |
|---------------------------------------|--|--|---------------------|---|--|---|--|-------------|
| Harris, Handleman, & Fong, 1987       | 2 females, 6 and 7, 1 male 8, ASD and ID     | Stereotypy                                     | Reversal            | Teacher, graduate student, or undergraduate student, school | Reversal, positive practice alone compared to imitation. Exaggerated hand claps overhead for 10 seconds. | Improvement for 2 participants, Counter-therapeutic for one participant | No   | No          |
| Harris & Wolchik, 1979 (Experiment 1) | 2 males, 5 and 6, ASD and ID                 | Stereotypy                                     | Reversal            | Undergraduate students, school                              | Positive practice compared to time out and DRO. Exaggerated hand clapping overhead for 10 seconds.       | Improvement, positive practice was more effective than time out and DRO | No   | No          |
| Harris & Wolchik, 1979 (Experiment 2) | Male, 6, ASD and ID                          | Stereotypy                                     | Reversal            | Undergraduate students, school                              | Positive practice compared to time out and DRO. Exaggerated hand clapping overhead for 10 seconds.       | Improvement, positive practice was more effective than time out and DRO | No   | No          |
| Harris & Wolchik, 1979 (Experiment 3) | Male, 7, ASD and ID                          | Stereotypy                                     | Reversal            | Undergraduate students, school                              | Positive practice compared to time out and DRO. Exaggerated hand clapping overhead for 10 seconds.       | Improvement, positive practice was more effective than time out and DRO | No   | No          |
| Kelly & Drabman, 1977                 | Male, 3, blind                               | Self-injury                                    | Reversal            | Teacher, school   | Positive practice plus reinforcement. Practiced arm raises 12 times.                                     | Improvement   | Yes, return to baseline across contingencies | No          |
| Luisell & Michaud, 1983               | Male, 11, visual and auditory impairment     | Inappropriate toy play                         | Reversal            | Teacher, school   | Positive practice alone. Practiced appropriate play for 30 seconds.                                      | Improvement   | No   | No          |
| Luiselli, Pemberton, & Helfin, 1978   | Male, 10, ID                                 | Stereotypy                                     | Reversal            | Teacher, school   | Positive practice plus DRO. FMT for arms 4 times.  | Improvement   | No   | No          |
| Luiselli & Rice, 1983                 | Male, 11, visual impairment and hydrocephaly | Inappropriate peer interaction and self-injury | Reversal            | Teacher, school   | Positive practice alone. FMT for arms for 5 minutes.   | Improvement   | No   | No          |

(Continued)

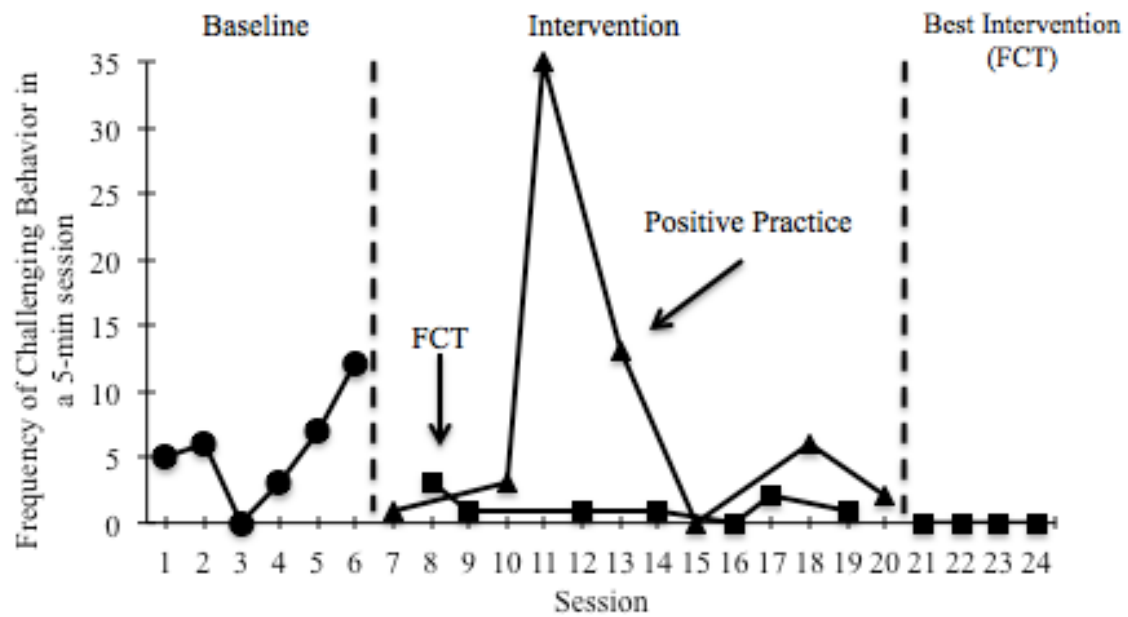
| Study                                 | Participants  | Challenging behaviors | Experimental design             | Implementer and setting | Intervention procedures   | Outcome   | Generalization | Maintenance           |
|---------------------------------------|---|-----------------------|---------------------------------|-------------------------|---|---|----------------|-----------------------|
| Luiselli, Suskin, & McPhee, 1981      | Male, 10, ASD   | Self-injury           | Alternating                     | Teacher, school         | Positive practice on FR1 and FR 3 schedules and positive practice with reinforcement on FR1 schedule. FMT for 30 seconds. | Improvement   | No             | Yes, after six months |
| Mang et al., 1986                     | 2 males, 7 and 12, ASD  | Stereotypy            | Multiple baseline with reversal | Teacher, school         | Positive practice alone compared to sensory extinction. FMT for 20 seconds.   | Improvement, positive practice was more effective for participant 1 and sensory extinction was more effective for participant 2 | No             | No                    |
| Mensel & Alfieri, 1976 (Experiment 1) | Male, 14, ID and visual impairment  | Self-injury           | Reversal                        | Unknown, school         | Positive practice plus DRI. FMT of the arms for 10 minutes.   | Improvement   | No             | Yes, after 4 months   |
| Ollendick, Shapiro, & Barrett, 1981   | 2 males, 7 and 8 and 1 female, 8, ASD, ID, emotional disturbance, and schizophrenia | Stereotypy            | Alternating                     | Unknown, school         | Positive practice compared to restraint. Appropriate manipulation of task materials for 30 seconds.                       | Improvement, positive practice was more effective for two participants while restraint was more effective for one.              | No             | No                    |
| Peters & Thompson, 2013               | Male, 9, ASD and male, 17, PDD and ADHD   | Stereotypy            | Multiple baseline               | Unknown, school         | Positive practice alone. Appropriate object manipulation for 30 seconds.  | Improvement   | No             | No                    |

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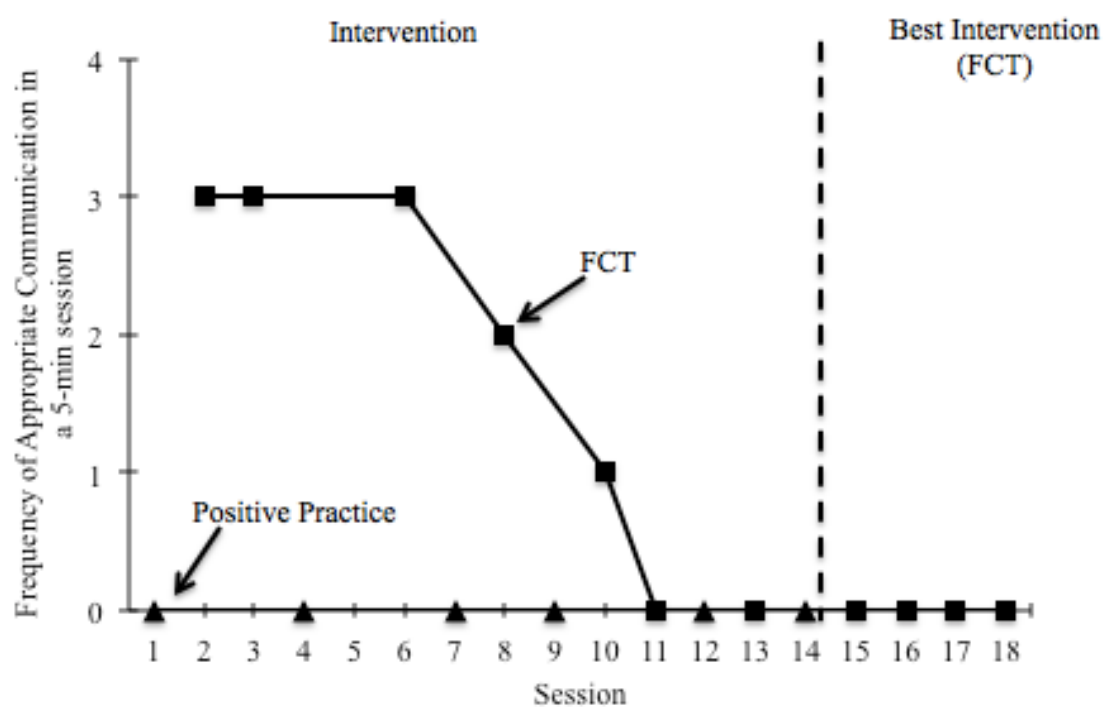
| Study   | Participants                                | Challenging behaviors | Experimental design             | Implementer and setting | Intervention procedures  | Outcome  | Generalization         | Maintenance         |
|---|---|-----------------------|---------------------------------|-------------------------|--|--|------------------------|---------------------|
| Shapiro, Barrett, & Ollendick, 1980           | 3 females, 6, 7, and 8, ID                  | Self-injury           | Alternating with reversal       | Unknown, school         | Positive practice alone compared to restraint. Appropriate object manipulation for 30 seconds. | Improvement, restraint and positive practice were equally effective for all three participants | No                     | No                  |
| Singh, Dawson, & Gregory, 1980 (Experiment 2) | Female, 16, ID                              | Self-injury           | Multiple baseline with reversal | Unknown, institution    | Positive practice plus reinforcement. FMT for the arms 25 times.                               | Improvement  | Yes, across conditions | Yes, after 6 months |
| Sisson, Hersen, & Van Hasselt, 1993           | Female, 15, and male, 21, ID and deaf-blind | Stereotypy            | Multiple baseline with reversal | Teacher, school         | Positive practice plus DRA. Appropriate object manipulation 3 times.                           | Improvement  | Yes, across activities | Yes, after 37 weeks |
| Sisson, Van Hasselt, & Hersen, 1993           | Male, 18, ID and deaf-blind                 | Stereotypy            | Multiple baseline with reversal | Teacher, school         | Positive practice plus DRO compared to DRO. Appropriate object manipulation 5 times.           | Improvement, Positive practice plus DRO was more effective than DRO                            | Yes, across settings   | Yes, after 49 weeks |
| Wells et al., 1977                            | 2 twin males, 10, ASD and ID                | Stereotypy            | Multiple baseline               | Unknown, school         | Positive practice plus reinforcement. Appropriate toy play for 2.5 minutes.                    | Improvement  | No                     | No                  |
| Zehr & Theobald, 1978                         | Male, 19, ID                                | Self-injury           | Reversal                        | Unknown, institution    | Positive practice alone. FMT of hands and arms for 5 minutes.                                  | Improvement  | No                     | No                  |



*Figure A.1.* The frequency of aggression (screaming, hitting, and verbal threats) for Pierce during five-minute functional analysis sessions.

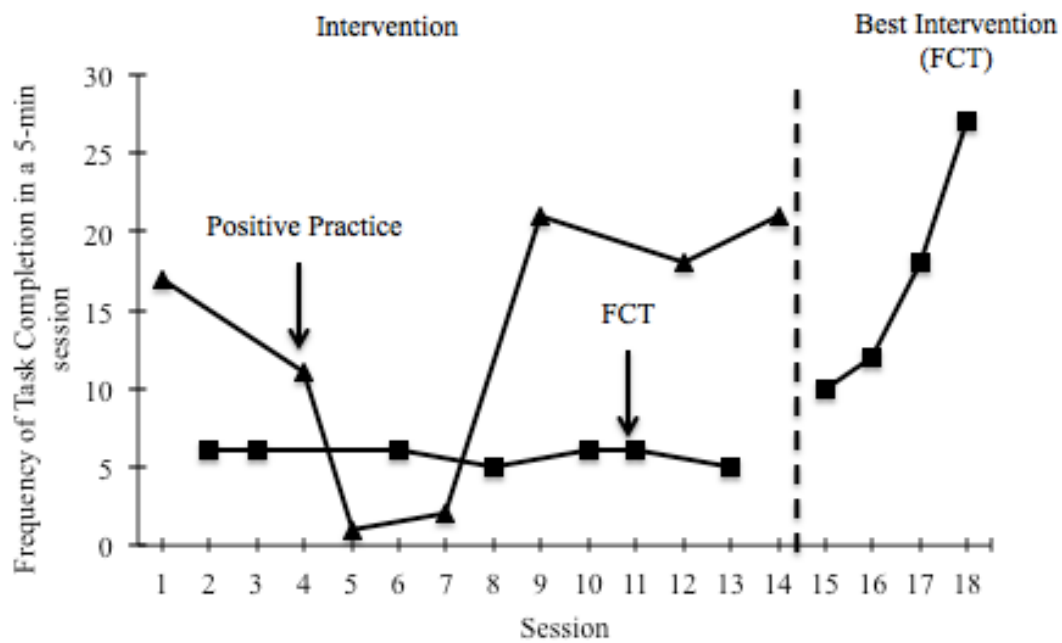


*Figure A.2.* The frequency of aggression (screaming, hitting, and verbal threats) for Pierce during five-minute baseline, FCT, and positive practice sessions.



*Figure A.3.* The frequency of unprompted verbalizations of “I want a break please” for Pierce during five-minute FCT and positive practice sessions.





*Figure A.4.* The frequency of letters written without full prompting for Pierce during five-minute FCT and positive practice sessions. This excludes letters written during each positive practice period where Pierce was required to write each letter five times.

## APPENDIX B

### Data Sheet B.1

#### *MSWO Data Collection*

Item A: \_\_\_\_\_  
 Item B: \_\_\_\_\_  
 Item C: \_\_\_\_\_  
 Item D: \_\_\_\_\_  
 Item E: \_\_\_\_\_  
 Item F: \_\_\_\_\_

Sum of Trial #s for A: \_\_\_\_\_  
 Sum of Trial #s for B: \_\_\_\_\_  
 Sum of Trial #s for C: \_\_\_\_\_  
 Sum of Trial #s for D: \_\_\_\_\_  
 Sum of Trial #s for E: \_\_\_\_\_  
 Sum of Trial #s for F: \_\_\_\_\_

| Trial # | Item Selected |
|---------|---------------|
| 1       |               |
| 2       |               |
| 3       |               |
| 4       |               |
| 5       |               |

| Trial # | Item Selected |
|---------|---------------|
| 1       |               |
| 2       |               |
| 3       |               |
| 4       |               |
| 5       |               |

| Trial # | Item Selected |
|---------|---------------|
| 1       |               |
| 2       |               |
| 3       |               |
| 4       |               |
| 5       |               |

| Trial # | Item Selected |
|---------|---------------|
| 1       |               |
| 2       |               |
| 3       |               |
| 4       |               |
| 5       |               |

| Trial # | Item Selected |
|---------|---------------|
| 1       |               |
| 2       |               |
| 3       |               |
| 4       |               |
| 5       |               |

Highest preferred (lowest sum)

Moderately preferred (middle sums)

Lowest preferred (highest sum)

## Data Sheet B.2

### *Functional Analysis Treatment Fidelity Sheet* *Based on Schieltz et al. (2010) and Iwata et al. (1994)*

**Procedures:**

- Randomization within sets of conditions
- Breaks between sessions
- At least 5 sessions per condition
- 5-min sessions

**Condition: FA Play**

| Item   | Correct/incorrect |   |   |   |   |
|--|-------------------|---|---|---|---|
|  | 1                 | 2 | 3 | 4 | 5 |
| Moderately preferred play materials are available  |                   |   |   |   |   |
| The implementer indicates he/she will play with the child  |                   |   |   |   |   |
| The implementer provides socially appropriate, noncontingent attention at least every 10 seconds |                   |   |   |   |   |
| No demands are placed (no questions, no telling the child what to do).                           |                   |   |   |   |   |
| Inappropriate behavior (target and non-target challenging behavior) is ignored                   |                   |   |   |   |   |
| <b>Percentage correct</b>  |                   |   |   |   |   |

Condition: FA Attention

| Item   | Correct/incorrect |   |   |   |   |
|--|-------------------|---|---|---|---|
|  | 1                 | 2 | 3 | 4 | 5 |
| Moderately preferred play materials are present  |                   |   |   |   |   |
| Implementer indicates the child needs to play by him/herself   |                   |   |   |   |   |
| Contingent upon target challenging behavior, the implementer provides socially appropriate attention (e.g. redirection, not overly negative – socially appropriate) for 20 seconds |                   |   |   |   |   |
| The implementer continues to provide attention until the target challenging behavior has ceased for 20 seconds   |                   |   |   |   |   |
| If the child engages in a non-target challenging behavior, the implementer ignores the behavior  |                   |   |   |   |   |
| The implementer ignores any other behavior   |                   |   |   |   |   |
| <b>Percentage correct</b>  |                   |   |   |   |   |

Condition: FA Tangible

| Item   | Correct/incorrect |   |   |   |   |
|--|-------------------|---|---|---|---|
|  | 1                 | 2 | 3 | 4 | 5 |
| Moderately preferred toys are available  |                   |   |   |   |   |
| Prior to the session, implementer provides access to the tangible item for 10s, then withholds/blocks access at the beginning of the session |                   |   |   |   |   |
| Contingent upon target challenging behavior, the implementer provides 20s of access to the item.   |                   |   |   |   |   |
| The implementer continues to provide access to the item until the target challenging behavior has ceased for 20 seconds.                     |                   |   |   |   |   |
| If the child engages in a non-target challenging behavior, the implementer ignores the behavior  |                   |   |   |   |   |
| The implementer ignores any other behavior   |                   |   |   |   |   |
| <b>Percentage correct</b>  |                   |   |   |   |   |

Condition: FA Escape

| Item  | Correct/incorrect |   |   |   |   |
|---|-------------------|---|---|---|---|
|   | 1                 | 2 | 3 | 4 | 5 |
| Academic or other relevant materials present (these are the only materials available)   |                   |   |   |   |   |
| Instructions are provided at least every 5 seconds.   |                   |   |   |   |   |
| Contingent upon non-responding, or incorrect responding, implementer presents instructions using least-to-most prompting hierarchy (verbal, verbal+model, verbal+physical as needed) with 5s time delay between instructions. |                   |   |   |   |   |
| Contingent upon the prompted or unprompted completion of a task, the implementer provides moderate praise   |                   |   |   |   |   |
| Contingent upon the target challenging behavior, implementer removes task materials and instructions for 20s.   |                   |   |   |   |   |
| Implementer continues to withhold demand for until the target challenging behavior has ceased for 20s.  |                   |   |   |   |   |
| If the child engages in a non-target challenging behavior, the implementer ignores the behavior   |                   |   |   |   |   |
| The implementer ignores any other behavior  |                   |   |   |   |   |
| <b>Percentage correct</b>   |                   |   |   |   |   |

*Data Sheet B.3*

*FA Data Collection*

Target Challenging Behavior: Aggression- (screaming) vocalizations at a volume above conversational level for 2 seconds or more; (hitting) making or attempting to make contact with another person with an open or fisted hand with a force greater than typical touching; (verbalized threats) any comment directed at self or others that indicates physical harm (e.g., I'm going to hit you; I would like to cut you).

Session # \_\_\_\_\_

Condition:    Play    Attention    Escape    Tangible

|           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 0:00-0:10 | 0:11-0:20 | 0:21-0:30 | 0:31-0:40 | 0:41-0:50 | 0:51-1:00 |
| 1:01-1:10 | 1:11-1:20 | 1:21-1:30 | 1:31-1:40 | 1:41-1:50 | 1:51-2:00 |
| 2:01-2:10 | 2:11-2:20 | 2:21-2:30 | 2:31-2:40 | 2:41-2:50 | 2:51-3:00 |
| 3:01-3:10 | 3:11-3:20 | 3:21-3:30 | 3:31-3:40 | 3:41-3:50 | 3:51-4:00 |
| 4:01-4:10 | 4:11-4:20 | 4:21-4:30 | 4:31-4:40 | 4:41-4:50 | 4:51-5:00 |

## Data Sheet B.4

### *Positive Practice Treatment Fidelity Sheet*

**Procedures:**

- Breaks between sessions
- At least 5 sessions per condition
- 5-min sessions

**Condition: Positive Practice Escape**

|  | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
| Academic or other relevant materials are present   |   |   |   |   |   |
| Implementer indicates he/she is going to place demands and describes contingencies (least-to-most prompting).  |   |   |   |   |   |
| At least once every 10 seconds without challenging behavior, the implementer provides socially appropriate praise.   |   |   |   |   |   |
| If the child engages in challenging behavior, the implementer will interrupt the behavior and use graduated guidance for positive practice until the child has completed 5 repetitions of the task |   |   |   |   |   |
| If the child does not practice on their own, the implementer will use the highest-level prompt until the child has fulfilled requirements.   |   |   |   |   |   |
| The implementer does not use praise during positive practice.  |   |   |   |   |   |
| If positive practice cannot be completed within the 5-minute time, it continues until requirements have been met.  |   |   |   |   |   |
| <b>Percentage Correct</b>  |   |   |   |   |   |

## Data Sheet B.5

### *Intervention Data Collection*

Target Challenging Behavior (tally): Aggression- (screaming) vocalizations at a volume above conversational level for 2 seconds or more; (hitting) making or attempting to make contact with another person with an open or fisted hand with a force greater than typical touching; (verbalized threats) any comment directed at self or others that indicates physical harm (e.g., I'm going to hit you; I would like to cut you).

Alternative Communication (C): "I want a break please" without prompting.

Alternative Behavior (B): Writing a letter and saying its name within 2 seconds of correctly writing the letter without prompting. (Do NOT include any independent repetitions when practicing it 5 times with implementer)

Session # \_\_\_\_\_

Condition: FCT

Positive Practice

|           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 0:00-0:10 | 0:11-0:20 | 0:21-0:30 | 0:31-0:40 | 0:41-0:50 | 0:51-1:00 |
| 1:01-1:10 | 1:11-1:20 | 1:21-1:30 | 1:31-1:40 | 1:41-1:50 | 1:51-2:00 |
| 2:01-2:10 | 2:11-2:20 | 2:21-2:30 | 2:31-2:40 | 2:41-2:50 | 2:51-3:00 |
| 3:01-3:10 | 3:11-3:20 | 3:21-3:30 | 3:31-3:40 | 3:41-3:50 | 3:51-4:00 |
| 4:01-4:10 | 4:11-4:20 | 4:21-4:30 | 4:31-4:40 | 4:41-4:50 | 4:51-5:00 |



## Data Sheet B.6

### *Functional Communication Training Treatment Fidelity Sheet*

**Procedures:**

- Breaks between sessions
- At least 5 sessions per condition
- 5-min sessions

**Contingency: FCT Escape**

| Item   | Correct/incorrect |   |   |   |   |
|--|-------------------|---|---|---|---|
|  | 1                 | 2 | 3 | 4 | 5 |
| Academic or other relevant materials are present   |                   |   |   |   |   |
| Implementer indicates he/she is going to place demands and describes contingency.  |                   |   |   |   |   |
| Contingent upon non-responding, or incorrect responding, implementer presents instructions using least-to-most prompting hierarchy (verbal, verbal+model, verbal+physical as needed) with 3-s time delay between instructions. |                   |   |   |   |   |
| Contingent upon the prompted or unprompted completion of a task, the implementer provides praise.  |                   |   |   |   |   |
| After the child completes one demand without the highest level of prompting: Implementer waits __s, then provides highest level of prompt for communication.   |                   |   |   |   |   |
| If the child engages in challenging behavior during delay, implementer waits for a 3-s break in challenging behavior before providing the highest level of prompt for communication.   |                   |   |   |   |   |
| Contingent upon prompted or unprompted communication, the implementer provides 20-s break from demands and removes task materials.   |                   |   |   |   |   |
| The implementer ignores any other behavior   |                   |   |   |   |   |
| <b>Percentage correct</b>  |                   |   |   |   |   |

# Data Sheet B.7

## *Best intervention Treatment Fidelity Sheet*

| Item  | Correct/incorrect |   |   |   |   |
|---|-------------------|---|---|---|---|
|   | 1                 | 2 | 3 | 4 | 5 |
| Academic or other relevant materials are present  |                   |   |   |   |   |
| Implementer indicates he/she is going to place demands and describes contingency. (write __ letters by yourself then say "I want a break please")   |                   |   |   |   |   |
| Contingent upon non-responding, or incorrect responding, implementer presents instructions using least-to-most prompting hierarchy (verbal, verbal+model, verbal+physical as needed) with three seconds between instructions.   |                   |   |   |   |   |
| Contingent upon the prompted or unprompted completion of a task, the implementer provides praise.   |                   |   |   |   |   |
| After the child completes __ demands without the highest level of prompting: Implementer uses a progressive time delay starting at 3 seconds and then provides highest level of prompt for "I want a break please." Once the child has independently communicated with no challenging behavior three times in a row at each level of prompting, then the implementer will increase the time delay. (3, 5, 7, 9) |                   |   |   |   |   |
| If the child engages in challenging behavior during delay, implementer waits for a 3-s break in challenging behavior before providing the highest level of prompt for communication.  |                   |   |   |   |   |
| If the child does not ask for a break within 10 seconds after giving 3 prompts for communication, the implementer will begin presenting demands again. At this point, the child is able to ask for a break at any time.   |                   |   |   |   |   |
| Contingent upon prompted or unprompted communication, the implementer provides 10-s break from demands and removes task materials (longer time if team decides more).   |                   |   |   |   |   |
| At the end of the session, if the frequency of challenging behaviors was below 80% of baseline average, then the implementer will double the number of letters independently written to fulfill the contingency (1, 2, 4, 8) stopping after 8 letters.  |                   |   |   |   |   |
| The implementer ignores any other behavior  |                   |   |   |   |   |
| <b>Percentage correct</b>   |                   |   |   |   |   |

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