FOSTERING BEHAVIORAL MOMENTUM AND REINFORCEMENT IN THE HOME: PARENTS AS BEHAVIORAL CHANGE AGENTS AND THE IMPLICATIONS FOR FAMILIES OF CHILDREN WITH AUTISM

A Thesis
Presented in Partial Fulfillment of the Requirements for
the Degree Master of Arts in the
Graduate School of the Ohio State University

By
Jill Anne Hollway, B.A.

****

The Ohio State University
2004

Master’s Examination Committee:
Dr. Ralph Gardner III, Advisor
Dr. Stephanie Peterson

Approved by
Ralph Gardner III
Advisor
Department of Education
ABSTRACT

The primary purpose of this study was to determine whether parents of children with Autism Spectrum Disorder (ASD), who have been trained to act as behavioral change agents in the home, could effectively increase their child’s compliance to task demands. A multiple baseline across behaviors design was conducted to determine whether (a) parents of children with Autism are capable of implementing effective behavioral intervention strategies, (b) teaching parents to act as behavior change agents in the home will increase their child’s compliance to low probability requests, (c) frequency of compliance has an impact on escape behavior, (d) the gradual fading of high-\(p\) request sequences will have an impact on compliance to low-\(p\) requests, (e) compliance to low-\(p\) requests could be maintained after the intervention was terminated, (f) this parent training package is socially valid. The results of this study indicate that a parent can be trained to be an effective behavioral change agent and increase their child’s compliance to requests that have a low probability for completion.
ACKNOWLEDGMENTS

I would like to express my appreciation to Dr. Ralph Gardner III, for his gentle spirit, tolerance, guidance, and recommendations in the design of this research. Also, I would like to thank Dr. Stephanie Peterson who during my oral defense, offered her support and perceptive insight into this research. I would like to thank Terri Hessler for her help and cooperation as a fellow researcher. In addition, I would like to express my gratitude to the participating family, for their enthusiasm, and dedication to the implementation of behavioral interventions in the home.

Finally, I wish to thank Mike Hollway who has been consistently supportive of my academic development and who nudged me ever so gently to fulfill the requirements of this degree.
VITA

August 30th, 1953 ....................... Born – Wyandotte, Michigan

1998 ........................................... B.A. Psychology, Ohio Wesleyan University,
                       Delaware Ohio

1998– present  ......................... Research Associate, The Ohio State University

2001- present  ......................... Graduate Student, at the School of Physical Activity
                       and Educational Services (PAES).

PUBLICATIONS

1. Research Units on Pediatric Psychopharmacology (RUPP) Autism Network &

2. Research Units On Pediatric Psychopharmacology (RUPP) Autism Network &
   RUPP Autism Study: Customer Approach to Clinical Trials. Journal of the American
   Academy of Child and Adolescent Psychiatry, 42:12.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>ii</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>iii</td>
</tr>
<tr>
<td>Vita</td>
<td>iv</td>
</tr>
<tr>
<td>List of Tables</td>
<td>vii</td>
</tr>
<tr>
<td>List of Figures</td>
<td>viii</td>
</tr>
<tr>
<td>Chapters:</td>
<td></td>
</tr>
<tr>
<td>1. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Literature Review</td>
<td>2</td>
</tr>
<tr>
<td>Rationale for Replication</td>
<td>22</td>
</tr>
<tr>
<td>Purpose</td>
<td>23</td>
</tr>
<tr>
<td>Research Questions</td>
<td>24</td>
</tr>
<tr>
<td>2. Method</td>
<td>25</td>
</tr>
<tr>
<td>Participants</td>
<td>25</td>
</tr>
<tr>
<td>Setting</td>
<td>26</td>
</tr>
<tr>
<td>Investigators</td>
<td>26</td>
</tr>
<tr>
<td>Dependent Variables</td>
<td>27</td>
</tr>
<tr>
<td>Procedural Integrity</td>
<td>27</td>
</tr>
<tr>
<td>Environmental Management</td>
<td>27</td>
</tr>
<tr>
<td>Prioritization of Reinforcement</td>
<td>28</td>
</tr>
<tr>
<td>Behavioral Momentum</td>
<td>28</td>
</tr>
<tr>
<td>Definitions of Target Behaviors</td>
<td>29</td>
</tr>
<tr>
<td>Maintenance and Generality</td>
<td>31</td>
</tr>
<tr>
<td>Social Validity</td>
<td>31</td>
</tr>
</tbody>
</table>
Independent Variables .................................................. 32
Compliance Treatment Package .................................. 32
Materials ..................................................................... 39
Treatment Integrity ..................................................... 46
Interobserver Agreement ........................................... 46
Experimental Design .................................................... 47
Social Validity ............................................................... 47

3. Results ........................................................................ 48
Reliability ................................................................... 48
Procedural Integrity ...................................................... 48
Dependent Variables .................................................... 49

4. Discussion .................................................................. 61
Research Questions ...................................................... 61
Limitations ................................................................. 67
Future Research .......................................................... 68
Summary ................................................................. 69

List of References .......................................................... 70

Appendixes ................................................................. 74
A. Parent Letter of Support .............................................. 74
B. Informed Consent Document ..................................... 77
C. Informed Consent Document for Videotaping ............... 81
D. Procedural Integrity Checklist .................................... 83
E. Reinforcement Survey ............................................... 86
F. Request Checklist ...................................................... 88
G. Participant Satisfaction Survey ................................... 91
H. ABC Tracking Sheet ................................................... 94
I. Parent Data Entry Diaries ........................................... 96
J. Daily Schedules ........................................................ 99
K. Teacher's Agreement to Cooperate ............................ 101
L. Permission to Observe and Videotape (school and camp) 103
# List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Procedural Integrity Results</td>
<td>49</td>
</tr>
</tbody>
</table>
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Percent Compliance to Low – Probability Requests Across</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>Behaviors</td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>Percentage of Inappropriate Behavior with Noncompliance to</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Low – Probability Requests</td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>Percentage of Inappropriate Behavior with Compliance to Low</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Probability Requests</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

According to the American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), Pervasive Developmental Disorder (PDD) is not a specific diagnosis; it is an umbrella term under which specific diagnoses are defined. Included under this umbrella are Autistic Disorder, Asperger's Disorder, Rhett's Disorder, Childhood Disintegrative Disorder, and Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS). PDD's are analogous in that they share qualitative impairments in a group of core features that seem to have diverse etiologies and natural courses (Klin & Volkmar, 1999). Children with PDD present with delays and or deviance in social, affective, and communicative development. The term "pervasive developmental disorder" emphasizes the pervasiveness of disturbances over a wide range of different domains and the developmental nature of the disorders affecting the normative unfolding of multiple competencies, particularly interpersonal relationships and communication. This is in contrast to the relatively more circumscribed disabilities of the specific developmental disorders and the anchoring effects of cognitive deficits in primary mental retardation (Klin & Volkmar, 1999). Children with PDD may function at or above normative levels in specific domains of cognitive processing. However, the core characteristics of these particular developmental disabilities include delayed and or deviant interpersonal relationships (social skills) and communication. Compared to their age mates few children with pervasive developmental disorders are academically proficient; many require training in self-help skills (toileting,
dressing, feeding, bathing, grooming), language, and play skills (Kauffman, 2001). Autism falls under the umbrella term of PDD, and of all of the PDD’s it has been the best studied. Autism is the paradigmatic condition against which all other PDD’s are defined (Klin & Volkmar, 1999). Significant delays in language, social skills, and the development of adaptive behavior, contribute to the majority of these children becoming adults' ill equipped to live autonomously. A major concern for parents of children with autism is in the teaching of adaptive behavior skills to promote independence in their children.

Literature Review

**Autism**

Currently to determine a diagnosis of autism, a child must present with delays and or deviations in reciprocal social interaction, verbal and nonverbal communication relative to developmental level, and exhibit a markedly restricted repertoire of activities and interests appropriate to developmental level. The child with autism must meet all three diagnostic criteria and all must have been present since early childhood.

**Brain Dysfunction**

Autism is a chronic condition that develops in early childhood. It is considered a biological disorder of brain development (Barlow & Durand, 1995.) Neurological abnormalities are also consistently found in children with autism. There is uniform agreement that autistic children have a greater incidence of abnormal EEGs and are at higher risk for having seizure disorder than the typical age-specific population (Golden, 1987). Structural abnormalities in the brains of many autistic children have been defined by neuroradiologic studies. Although the findings are varied, ventricular enlargement appears to be the most common abnormality and is typically most prominent in the left temporal ventricle (Golden, 1987). Frith (2003) cites increased head circumference and increased brain weight as having been identified as among the most robust findings in
studies on brain abnormalities. Possible causes associated with autism include perinatal problems, congenital infections, metabolic disorders (phenylketonuria), and chromosomal disorders (Fragile X Syndrome) (Golden, 1987). Current studies that have focused on the identification and characterization of genes and their alleles that are important in the etiology of autism spectrum disorders (ASD), enable an understanding of the molecular basis of these disorders (Pickett, 2001). Purcell, Ok-Hee, and Prevsner (2001) reported that gene expression is regulated in cells from autistic individuals as a consequence of the disease process. One approach to studying the molecular changes that occur in autism is to measure gene expression in post-mortem brain samples (Purcell, Ok-Hee, & Pevsner (2001).

The acceptance of the presence of abnormalities in central nervous system function has led to speculations concerning the relationship of these abnormalities to the linguistic cognitive and interpersonal disabilities associated with autism (Golden, 1987). Neuropathological studies in autistic brains have shown small neuronal size and increased cell-packing density in a variety of limbic system structures including the hippocampus, a change consistent with the curtailment of normal development (Blatt, et al., 2001). Caution must be used when developing hypotheses concerning these relationships as there is a paucity of evidence that centers on the relationship between the core psychological deficits in autism and the biological dysfunction in children with autism (Golden, 1987). There is even less information about the causes of this disorder. Autism is not a unitary disease with a single etiology. It is a heterogeneous behavior syndrome found in association with many etiologies (Sigman & Capps, 1997). Attempts to define relationships of autism to specific disorders have been unsuccessful (Golden, 1987).
Characteristics

Characteristics of autism include poor social relatedness, delayed or abnormal language, difficulty with concept formation and abstraction, unusual motivation systems and preferences, and stereotyped behaviors (Mulick & Meinhold, 1994). According to the APA’s Diagnostic and Statistical Manual IV (DSM-IV) the essential features of Autistic Disorder are the presence of markedly abnormal or impaired development in social interaction and communication, and a markedly restricted repertoire of activity and interests. The impairment in reciprocal social interaction is gross and sustained and may include the inability to read and correctly interpret verbal and nonverbal social and emotional cues, the inability to engage in joint attention, and/or the inability of attributing mental states to others (Frith, 2003). The impairment in communication is also gross and sustained and affects verbal and non-verbal communication. There may be a delay or total lack of the development of language. The qualitative impairments of these conditions are distinctly delayed relative to the individual’s developmental level or mental age. About 10% of individuals with ASD have special talents and function at or above normative levels in certain cognitive areas; the most recent data suggest certain peaks in performance in all autistic individuals regardless of age and ability (Frith, 2003). These special talents are referred to as splintered skills.

Prognosis

About 10% of individuals with autism recover sufficiently to lead near-normal lives, find suitable employment, and live independently (Gray, 1998). Though independent, these individuals often lead lonely and emotionally impoverished lives. However, when compared to the majority of individuals with autism, the long-term outcome is considered a positive one. The difficulty for parents is in predicting whether their child will be one of these fortunate 10% and knowing specifically how much to invest in the effort and hope of a partial recovery (Gray, 1998).
Prevalence

According to Klin & Volkmar (1999) the relative infrequency of autism and associated PDD's, difficulties in case identification, changes in diagnostic criteria, and the nature of definitions used to describe autism have caused complications for researchers when implementing epidemiological studies. Nevertheless, most studies of autism have suggested prevalence rates of between 2 and 5 cases in 10,000 children. Autism is usually 4 to 5 times more prevalent in males than in females. Females that do have autism tend to have a more severe form of the disorder. Specifically, females traditionally have lower IQs than males. Autism is not a phenomenon peculiar to American culture; children with autism are found among children around the world (Kauffman, 2001). Epidemiological evidence on other PDD's is even more limited than on that of autism. It does however seem that atypical PDD/PDD-NOS is more common than autism. Other PDD's are much less common, such as Childhood Disintegrative Disorder, which is 10 times less common than more strictly defined autism (Klin & Volkmar, 1999).

Typical Social Development

From birth or shortly thereafter the human infant is remarkably social (Volkmar, 1987). Infants come into the world prepared to engage in relationships with people (Sigman & Capps, 1997). They are ready to learn about and respond to social stimuli and are able to form attachments to their caregivers. As a fetus, the newborn had heard its mother’s voice in utero. Infants demonstrate a preference for familiar voices as opposed to unfamiliar voices. They also attend to faces with their eyes soon after birth. In the first month of life infants tend to look at the outer edges of peoples faces. In subsequent weeks they begin to focus on the eyes of those who attend to them. During the first weeks of life they imitate behaviors they see in others, like sticking out their tongues and turning their heads to one side. This imitation contributes to the development of an understanding of self and others, as infants look at bodies in motion while experiencing the movement
themselves (Volkmar, 1987). The infant’s awareness of bodily movement and attention to faces provide a basis for social interaction. In the first six months of life, infants begin smiling, cooing, and laughing; this develops as the infant begins to sustain eye contact with other people for longer periods of time. After six months infants begin to interact with others using joint-attention behaviors (i.e., they attempt to share their experience of an object or an event with other people). (Sigman & Capps, 1997). A dramatic occurrence of facial discrimination occurs when the infant shows fear of strangers, usually at eight months. Fear of strangers implies the ability to discriminate between different people, and it implies an attachment to certain familiar people (Frith, 2001).

Infants who have developed the behavior known as “social referencing” will look at their caregivers to read their expressions when confronted with ambiguous or mildly threatening situations (Sigman & Capps, 1997). Many of the behaviors that appear at around nine months and continue to develop through the child’s third year are embedded in the infant’s ability to recognize and undertake the perspective of another person.

Young infants respond to the vocal expression of emotion and long before he or she can respond differentially to the verbal content of speech, the infant can respond with great accuracy to tone of voice (Volkmar, 1987). Beginning at age two a child starts to develop awareness for the situations that bring about simple emotions such as happiness, sadness, fear, and anger. By the end of a child’s second year he or she will begin to understand complex emotions like pride, shame, and guilt. These are important developments in the child’s social understanding and are pre-curors to the development of empathy. Responding to a child with sensitivity and appreciation for their individual characteristics and needs as they change over time creates a sense of security. It is important to understand, however, that some children’s needs may be easier to perceive or to satisfy than others, a point that is relevant in discussing the social relationships of children with autism (Sigman & Capps, 1997).
Deviant Social Development

The single most defining and handicapping feature of autism is social dysfunction (Kanner, 1943). Children with autism exhibit impairment in social reciprocity early in life and as infants fail to develop reciprocal eye contact and fail to acquire the social smile in the first months of life. Though highly responsive to even minute environmental changes, the human face and social interaction hold very little interest for them. The powerful motivational factors do not appear on schedule, and specific social attachments do not develop when expected (Volkmar, 1987). Combined data from clinical observations and experimental findings indicate that the social behavior of young autistic children is qualitatively different from that seen in even very young infants; it differs as well from that observed in children with mental retardation not associated with autism (Klin & Volkmar, 1999). As infants, affected children may not seek physical comfort from their parents, and may be difficult to hold. It is also rare for a child with autism to attempt to share their experiences with others (they tend not to look at faces for information), and they are much less likely to reference another person to make sense of an ambiguous or threatening situation (Sigman & Capps, 1997). This may explain their difficulty in pairing facial and vocal expression of emotion.

Social interest and relatively remote social skills may develop as autistic children enter later childhood and adolescence. However, social responsiveness continues to be a source of considerable disability even for higher-functioning individuals. Their attempts at social interaction usually flounder as a result of both their inability to communicate with others empathetically and their failure to integrate various sources of information relevant to interaction (i.e., social referencing) (Volkmar, 1987). Although social functioning may improve over age five, those markedly improved individuals rarely reach normalcy and may become odd or passive in their style of interaction. Many children remain content to be alone and often engage in self-stimulatory activities.
Individuals with good outcomes are typically described as loners who are friendless and quite deviant in their social interaction (Volkmar, 1987)

The capacity to imitate is an important developmental milestone that appears to be a prerequisite for acquisition of future symbolic activities. The capacity to imitate entails the ability to both recall a stimulus and then transfer it into motor activity. Developmental level seems to be an important determinant of imitation. Deficits in imitation have been demonstrated in children with autism who do best in response to tasks requiring manipulation of objects and poorly in response to tasks requiring imitation of actions. The play of a child with autism is seen in significant contrast to the richness of play in a typically developing child and is characterized by a lack of social engagement, repetitive and stereotyped object manipulation, and non-functional use of objects (Volkmar, 1987).

Frith (2001) describes individuals with autism who exhibit one or all of a triad of social impairments: aloofness, passivity, and odd behavior. In early childhood many individuals with autism exhibit aloofness to social interaction. Later, as the child ages, he or she may become predominately passive or odd when approaching others, depending on level of function (Frith, 2001). During adolescence individuals with autism at all levels of intellectual ability often show an aggravation of behavioral symptoms and deterioration of social functioning (Sigman & Capps, 1997). Issues of control become more troublesome as children grow larger and stronger, and it becomes increasingly more difficult to monitor and modify their behavior (Sigman & Capps, 1997). Deficits in social understanding and the absence of “theory of mind” limit opportunities to develop interpersonal relationships with peers, and the adolescent with autism will often appear aloof and unapproachable (Frith, 2001). Some adolescents become explosive and aggressive and remain inflexible and rigid when there is a change in routine. Older individuals with autism, whether mentally retarded or not, seem to want social contact a
great deal. Yet despite great desire and effort, autistic adolescents and adults seem unable to read social cues (Sigman & Capps, 1997).

**Typical Language Development**

Typically developing children from birth are pre-disposed to communicate with the people around them. Newborn infants show a preference for language over other kinds of sounds and in the first month of life can distinguish sounds of their native language from those of a foreign language (Sigman & Capps, 1997). By four months of age infants begin to babble, a form of vocalizing that includes consonant and vowel sounds akin to those used in speech (Sigman & Capps, 1997). Though generally not speaking before the second year of life, children use a variety of communicative behaviors by the end of the first year. These are limited to requesting objects or actions, rejecting offered objects or activities, and calling attention to objects. These intents are expressed first with gestures, such as reaching, pushing, and pointing. Later vocalization occurs to replace them. At the same time, typically developing children also begin to understand a few words. These words are often associated with the routine games a caregiver may play with the child, such as “pat-a-cake,” or pointing games like “show-me-your-nose.” The child will respond by clapping his or her hands or pointing to his or her nose (Paul, 1987). Typical use of language begins at about twelve months of age, when children begin to say their first words. At the same time children show that they comprehend words outside of the context of routine games. During the twelve- to eighteen-month period there is a rapid increase of expressive and receptive language (Paul, 1987). Children begin to name people and objects such as “mommy,” “juice,” or “cookie.” They also encode relations using words like “all gone” or “more.” They begin to learn social words as well such as “hi,” and “bye-bye.” In the middle of the second year a child’s vocabulary reaches approximately 50 words. During the eighteen- to twenty four-month period children begin to understand the conversational obligation to
respond with speech to speech (Paul, 1987). The period from two to five years is the
time in which the child's language evolves from more primitive sounds to full
grammatical forms. By the time children reach the age of five years they have acquired
most of the sentence structure of their
language. Language development in children with varied disorders, including mental
retardation, is typically found to be a delayed version of the normal sequence.

Language Development in Children with Autism

Although children with autism may or may not exhibit problems in speech, their
language, and particularly their use of whatever linguistic ability is available to them, is
almost always deviant (Klin & Volkmar, 1999). Approximately 50% of individuals with
autism never speak; those who do speak exhibit language that is atypical in various ways.
Although they may use words and grammatical structures correctly, their speech reflects
fundamental deficits in the comprehension and expression of attitudes and intentions
(Sigman & Paul, 1997). Relative to typically developing children, those with autism are
slow in acquiring words. This perhaps is not surprising given that children pick up the
meaning of words while interacting with a person who is either labeling objects and/or
topics that both are attending to. Children with autism have significant deficits in joint
attention behavior (Sigman & Paul, 1997). Echolalia is one of the most notable
characteristics of the deviant speech patterns evident in children with autism. Eighty
percent of all verbal children with autism produce this stereotyped speech, and those who
echo the most seem to use very little spontaneous speech. Many of these usages are non-
communicative, as in the frequent repetitive utterances of advertisement jingles and
television commercials (Sigman & Paul, 1997). It is in the most functional aspects of
language that the degree of communicative disability is shown to be the most profound
(Klin & Volkmar, 1999). For instance the speech of individuals with autism is often
characterized by inappropriate use of intonational patterns and stress, conveying the
impression of monotonic or pedantic delivery. Semantic difficulties are often reflected in
the form of extreme literalness, as well as a paucity of conceptual words, particularly
terms that express mental states in others and oneself. Even the highest-functioning
individuals tend to fail to observe the usual conventions of communication, such as turn
taking and contextualization (i.e., providing background information that is not known to
another) (Klin & Volkmar, 1999). Their conversations may appear one-sided and
sometimes incoherent.

Stereotyped Behavior & Routine

Repetitive actions have long been considered a common component of mental
disturbance and are one of the main diagnostic criteria of autism. However, they are not
uniquely associated with autism (Frith, 2001). Stereotypical patterns of behavior may or
may not result in self-injurious behavior. Often it seems to provide sensory feedback,
which is referred to as self-stimulation (Kauffman, 2001). Self-stimulation is self-
reinforcing or self-perpetuating feedback and is not likely to stop unless an incompatible
request has been made. Some interventions include promoting a more acceptable
alternative form of self-stimulation as a reinforcer for correct behavior or providing a
punishing consequences (Kauffman, 2001). Stereotypies are not only present in
movements but also in thoughts, hence they could be unobservable (Frith, 2001). More
unique to autism are routine patterns of behavior (i.e., the patterned touching of
doorframes, patterned pacing, or the repetitive lining of red blocks).

Non-Compliance.

Frequently associated with the core symptoms of Autistic Disorder are serious
behavioral disturbances such as non-compliance, aggression, self-injurious behavior, self-
stimulation, and tantrums. Kanner (1943) noted that it was unusually difficult to get
children with autism to comply even to simple tasks. According to Klin and Volkmar
(1999), attempts at introducing structure by placing demands on a child with autism could
lead to temper tantrums. The frequency of maladaptive behaviors (i.e., stereotypy, self-abusive behaviors) by autistic children might be viewed by others as an aspect of negativism or non-compliance (Volkmar, 1987). These maladaptive behaviors may be elicited by a number of setting events including changing the child’s typical routine or placing him or her in a demand situation. Children with developmental delays may be already educationally disadvantaged, but the problem is exacerbated for some who do not follow instructions (Killu, Sainato, Davis, Ospel, & Neely-paul, 1998). The variety of maladaptive behaviors that autistic children often display can be very stressful to their parents at home and in the community. Some children are aggressive, some have problems with eating or toileting, and most have difficulties with language (Gray, 1998). Another source of stress for parents of children with autism is their children’s’ public behavior (Gray, 1998). Maladaptive behavior is often manifested in the form of tantrums (e.g., screaming, yelling, destructiveness) and quite often, aggressive behavior toward others with whom they interact in the community. When a child with autism reaches adolescence the problems are compounded by growth in size and strength. Family and other caregivers find it very difficult to cope with behaviors they could previously handle when they are added to the adolescent’s new and often overwhelming sensations and emotions (Sigman & Capps, 1997).

*Parents of Children with Autism*

One of the major concerns established by parents of children with autism is whether their child has the ability to function independently. About 10% of people with autism recover sufficiently to lead normal lives, find suitable employment, and live independently (Gray, 1998). Maurice, Green, and Luce (1996) noted that a small portion of people with autism (approximately 5%) may be expected to achieve independent functioning as adults. Therefore, an overwhelming number of adults with autism continue to experience significant social and behavioral problems that negatively impact their
lives. Currently, the mainstream position is that autism is a "severely incapacitating lifelong developmental disability" (Maurice, Green & Luce, 1996). When interviewing parents of children with autism, Gray (1998) cited institutionalism as the outcome that the parents most feared. The parents assumed that these institutions were understaffed, provided little more than custodial care, and had few appropriate programs for autistic people. Gray (1998) described parental concerns regarding the standards of hygiene in institutions and the possibility that their child may be subject to physical or sexual abuse. Institutionalization is the probable outcome for many if not most adults with autism. However, some parents will opt to keep their adult child with autism at home, though well aware of the problematic nature of the situation.

Employment is another main concern for parents of children with autism. Even if the child's level of function is normal to near normal, he or she may lack the social skills and the ability to engage in positive social interactions in order to maintain employment (Gray, 1998). Transition planning for students with disabilities presents a variety of challenges to parents of children with autism. A number of these challenges are outlined by Getzel and deFur (1997) in an analysis of 84 transition plans for students with significant disabilities. The results of their analyses indicated that for a majority of students with significant disabilities there is a need for greater participation in the planning of their future in order to increase opportunities for accessing employment and a wider range of support services in the community when exiting school.

Adaptive Behavior

Pierce and Schreibman (1994) studied the efficacy of using a pictorial self-management package to teach daily living skills to three low-functioning boys with autism whose ages ranged from 6 to 9 years. The results showed that children with autism could successfully use pictures to manage their behavior in the absence of a treatment provider. A primary concern of parents of children with disabilities is the lack
of autonomy in their offspring and resulting burden of care (Pierce & Schreibman, 1994). Attention should be given to teaching daily living skills (e.g., positive social interactions, toileting, communicating needs, or getting dressed) in order to provide individuals with autism increased opportunities to develop adaptive skills. Acting independently is valued and typically expected by our culture, and those acquiring independence early in life have more potential to thrive in both domestic and vocational settings (Pierce & Schreibman, 1994). The need to develop effective strategies when teaching new behaviors to children with autism is cumbersome because they are more apt to require large chunks of their caregivers time and energy, either to teach them or to perform the skill for the child.

**Behavioral Intervention**

Several studies have shown that one treatment approach, early intensive instruction using the methods of applied behavior analysis (ABA), can result in dramatic improvements for children with autism (e.g., Anderson, Avery, Di Pietro, Edwards, & Christian, 1987; Lovaas, 1987; Lovaas & Smith, 1989). There is empirical evidence that suggests that ABA methods can produce comprehensive and lasting improvements in many important skill areas for most people with autism. Studies have shown that behavioral intervention can produce large improvements in specific areas such as peer interactions, classroom behavior, self-care, and language skills (Maurice, 1996). A number of approaches have been developed to increase social and emotional understanding in individuals with autism. To a great extent, effective behavioral support is about engineering settings (e.g., schools, homes, and workplaces) so that problem behaviors are less likely to occur. The teaching of socially appropriate skills has become an integral part of behavioral support (Horner & Carr, 1997). Behavioral intervention, whether carried out in schools, institutions, or homes, is at the core of most interventions for individuals with autism (Sigman & Capps, 2001). Behavioral treatment strategies are designed for each child individually and based upon empirical assessment of his or her
behavioral excesses and deficits (Sigman & Capps, 2001). Interventions currently being studied include self-management training, cognitive behavioral therapy, functional communication techniques, class-wide peer tutoring, compliance-training and behavioral momentum.

In a study conducted by Stahmer and Schreibman (1992), three children with autism who engaged in detrimental self-stimulation learned to exhibit appropriate play skills in unsupervised settings using a self-management treatment package. Cognitive behavioral therapy was studied in high-functioning children with autism, aged 8 to 17 years (Bauminger, 2002). The intervention consisted of interpersonal problem solving, affective knowledge, and social interaction. The results demonstrated progress in all three areas of intervention and the children were more likely to initiate positive social interaction with peers after treatment. Sideridis, et al., (1997) studied the effectiveness of peer tutoring on spelling and social interactions in three typical students and three students with mild disabilities. The results showed gains in spelling accuracy for all students up to 49% and duration of student social interactions increased up to 86%. Using the picture exchange communication system (PECS) as an augmentative communication system, Charlup-Christy, Carpenter, Le, LeBlanc, and Kellet, (2002) studied PECS acquisition in three children with autism. The children’s ages ranged from 3 to 12 years and language programming was prescribed for intervention as they did not speak or rarely spoke. The results indicated that all three children met the learning criterion for PECS and showed concomitant increases in verbal speech.

Compliance, Behavioral Momentum and Adaptive Behavior.

Non-compliance is one of the most frequently reported behavior problems in children with developmental disabilities (Mace, 1988). In addition to its prevalence, treatment of noncompliance is important because of its co-variation with other maladaptive and adaptive behaviors (Mace et al., 1988). New adaptive behaviors can be
elicited to take the place of old maladaptive responses, as the child with autism becomes compliant. Mace et al. (1988) and Nevin, Mandell, and Atak (1983) conducted studies to test the effectiveness of the behavior momentum theory. The investigators incorporated the sequencing of high-\(p\) probability (high-\(p\)) commands prior to delivering low probability (low-\(p\)) commands at different schedules of reinforcement to adult males with developmental disabilities. Their data suggest that giving a sequence of high-\(p\) commands immediately prior to issuance of a low probability low-\(p\) command increases the probability of compliance for some subjects and reduces compliance latency for others. They recommend that high-\(p\) commands should be altered to be consistent with the age and functioning level of future subjects. Mace et al. (1988) thought that it would be conceivable to modify the high-\(p\) commands to make them applicable to a wide range of target behaviors and populations.

Davis, Brady, Williams, and Hamilton (1992) describe a similar study in which responses to high-\(p\) and low-\(p\) requests were measured. These data show a functional relationship between the high-\(p\) request sequence and increased responding to the low-\(p\) requests of two children ages 7 and 5 years, with severe behavior disorders. This study further expanded Mace et al. (1988) as the results lend support to the notion that nonaversive antecedent procedures will increase responding to low-\(p\) requests. The investigators also introduced each child to multiple trainers in order to measure generalized appropriate responding to persons who did not use high probability sequences. Davis, Brady, Hamilton, McEvoy, and Williams (1994) continued to study behavioral momentum by expanding on existing high-\(p\) request and social skills research, by looking at the effects of high-\(p\) requests on the social interactions of children with severe disabilities using a multiple baseline design. The results of this study supported the existing body of high probability request research as the sequencing of high-\(p\) requests increased student responsiveness to low-\(p\) demands. For children who lack the essential
skills to interact with peers and adults, the results of this study have important implications for the development of social skills.

Killu, Sainato, Davis, Ospelt, & Neely Paul (1998) used high-probability request sequence to elicit compliant responding to low-probability requests in three preschool children with developmental disabilities. When the high-probability request sequence was withdrawn, compliant responding to low-probability requests was maintained for all children across time and different settings (Killu, Sainato, Davis, Ospelt, & Neely Paul, 1998).

Ducharme and Popynick (1993) conducted a study consisting of four levels of high-p to low-p requests. Four children were taught to follow parental instructions by using what they termed an “errorless” compliance approach. This study supported the findings of Davis et al. (1992), as it required no punishment or remedial consequence to increase responding. There were four treatment phases and the requests were divided into probability levels by percentage of responding. Transitioning conditions were administered after mastery of each level of request to make the passage from one phase to another less abrupt (after several sessions of level 1 requests, the parents gradually introduced level two requests).

Generalization probes were conducted two times during the treatment phase. Parents were taught to administer all levels of requests. The request presentations were conducted randomly during the empirical assessment, baseline, and probe conditions. The investigators also measured the reduction in maladaptive behaviors. The results of the study showed that the compliance package was effective in producing high percentages of compliance to a broad range of requests without requiring a physical consequence. The package also produced concomitant decreases in maladaptive behaviors during demand conditions, and the improvements were maintained during probe conditions. The analysis of all four levels of compliance probability suggested that training through the
graduated series of request levels was necessary to guarantee compliance to all levels of requests when physical compliance is not utilized. Ducharme and Popynick (1993) suggested that a major limitation to this study was its complexity. The request sequences involved four levels of probability requests. It was suggested that future studies be abbreviated. Ducharme and Worling (1994) expanded the research by adding a fading procedure that involved a systematic reduction in the number of high-probability requests and an increase in the latency between the high- and low-probability requests. Their findings determined that high-\( p \) request sequences could be faded successfully. The investigators hypothesized that the stimulus control of compliance could be transferred from the stimulus complex of three high-\( p \) requests and one low-\( p \) request to the low-\( p \) request only. They also extended the existing literature by adding a fading component to the momentum-based intervention that was implemented by parents.

*Setting Events & Establishing Operations*

Environmental events can cue behavior in a variety of ways. Setting factors can effect behavior by providing complex discriminative cues (Mulick & Meinhold, 1994). After reviewing studies of assessment and the treatment of problem behavior, Smith and Iwata (1997) determined that there were methodological limitations in this prior research. Their review of the literature focused on research that studied the motivation and function of problem behavior and the antecedent events associated with it. They suggested that future research focus on the manipulation of these antecedent events in order to determine their function in the maintenance of problem behavior. Michael (2000) discussed the importance of the establishing operation in the analysis of behavior especially in functional analysis methodology, which requires attending to and control over antecedent events and consequences.

Iwata, Smith, and Michael (2000) determined that establishing operation investigations are best implemented in the presence of relevant reinforcement
contingencies. A functional analysis is often conducted when therapists are investigating the function of problem behavior. However, for individuals that exhibit self-injurious behavior (SIB), the functional analysis has limitations. Functional analysis (FA) conditions are designed to evoke and provide reinforcing consequences for problem behavior. Thus, the risks associated with this assessment may outweigh the benefits if the FA conditions evoke aggressive or self-injurious behavior.

Northrup, Fusilier, Swanson, Roane, and Borrero (1997) conducted reinforcer assessments of various stimuli that are often used in classroom-based behavioral treatment programs for three boys with a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) who alternatively received placebo or methylphenidate. The results showed clear differences in the reinforcing effectiveness of the preferred items when participants received methylphenidate as compared to placebo. The overall results suggest that methylphenidate might act as an establishing operation for some classroom reinforcers and that the identification and control of a child’s medication status may be essential for the accurate identification of the most effective reinforcers. This has important implications for the development of behavioral treatments in children who are being treated with medication.

Horner, Day, and Day (1997) examined the effect of establishing operations on discriminative stimuli (SDs) which often produced problem behavior in three adolescents with severe intellectual disabilities. By incorporating “neutralizing routines” in order to diminish or eliminate establishing operations, the investigators were able to reduce the reinforcing effect that was associated with the problem behavior.

In order to detect environmental determinants of problem behavior, Smith and Churchill (2002) conducted a precursor analysis of problem behavior in four adults with mental retardation and severe chronic behavior disorders. Their rationale for conducting a precursor analysis instead of a full functional analysis was the potential risk to
participants and therapists during the assessment. By implementing a precursor analysis, investigators reduce the risks associated with a full functional analysis. When a problem behavior is a member of a "response class hierarchy," which includes other more benign behaviors, then placing FA contingencies on the benign members of this response class could produce useful information about the function of the problem behavior (Lalli, Mace, Wohn, & Livezey, 1995).

*Parents as Behavioral Change Agents.*

Early approaches to working with parents of autistic children have undergone a radical change over the last twenty years. Kanner's description of the pathological role played by parents led to attempts by therapists to establish bonds with the autistic child that his or her mother failed to develop (Marcus & Schopler, 1989). The therapeutic approach involved one-on-one intensive interaction with the child as its primary strategy. The approach to parents ranged from individual to group therapy and focused on the parents' personal problems that were felt to have contributed to their child's deviant behavior. This notion is now obsolete and since that time parent education programs have become an effective mode of treatment delivery for teaching families effective behavioral strategies to manage challenging behavior in young children with autism (Moes & Frea, 2002).

Rickert, et al., (1988) conducted a study of seven parents, each with a clinic referred non-compliant child in a six-week group training program designed to teach instruction-giving and time-out skills. During the first three weeks they employed a didactic training format (lectures and modeling). The last three weeks consisted of competency-based instruction, during which the parents had to demonstrate skills to a
criterion level in order to complete training. Results showed that didactic training alone was insufficient to develop skill acquisition and gain mastery. Following competency-based instruction, however, six of the seven parents achieved 90% accuracy when implementing the targeted procedures. These acquired skills were maintained at six and 12-week follow-ups.

Mueller, et al., (2003) conducted two studies in a clinical setting in which four different multicomponent training packages were evaluated to increase the treatment integrity of parents when implementing pediatric feeding protocols. During Study 1, three parents of children with feeding problems were exposed to a treatment package of written protocols, verbal instruction, therapist modeling, and rehearsal training. Results suggested that the package was successful in producing high procedural integrity. Study 2 consisted of training six parents to implement three different packages that included modified versions of the package used in Study 1. The results of this study also showed high procedural integrity and were maintained for up to three months. Mueller et. al (2003) summarized that a reasonable next step might be to evaluate treatment integrity in the home and in other settings and discussed the implications for using the less time consuming modified versions of the first study.

Summary

Children with autism suffer qualitative impairments in reciprocal social interaction and language development. They also engage in stereotyped or perseverative behavior. Often co-morbid with the core symptoms of autism is a severe behavioral disturbance. When placed in demand situations, individuals with autism are non-compliant. Noncompliance is observed in the form of tantrums, aggression, stereotypies,
self-stimulation, disruptiveness, and self-injurious behavior. This non-compliant behavior may cause stress among family members at home and when they are out in the community.

When presented with simple demands a child with autism may initiate severe kicking, screaming, and biting of others. Parents, who bear the responsibility for teaching their children daily living skills, may find it difficult to cope with these mood swings, tantrums, and aggression. Non-compliance is a major concern for parents of children with autism, as they labor to increase their child’s self-sufficiency. This responsibility motivates them to establish a home environment conducive to the learning of basic skills. Children with autism who are non-compliant when placed in demand situations run the risk of falling even further behind typically developing peers. Society rewards independence and supports those who thrive in both domestic and vocational settings (Pierce & Schreibman 1994). Training parents of children with autism who are non compliant to implement behavioral intervention strategies which promote compliance may increase the child’s chances of achieving independence and provide them with an opportunity to attain greater fulfillment in their daily lives.

Rationale for Replication

The above-mentioned studies suggest that the sequencing of high-\(p\) requests immediately prior to presentation of a low-\(p\) request may increase the probability of compliance and also reduce compliance latency and task duration in subjects who shared a history of non-compliance. When non-compliant behavior decreased, adaptive behavior naturally increased even without the adaptive behaviors being taught. For families of children with ASD who are non-compliant, this means that by eliciting compliant behavior the whole family benefits. As self-reliance increases, parent
responsibilities change and less time is spent on the daily maintenance and routines that initially caused the problem behavior. As a result of this, more time may be spent by the parent engaging in quality time with the child and with other children in the family. Often a family is restricted from doing things or going places because of the non-compliance of the child with ASD, who may tantrums when there are minor disruptions in the daily routines. There are times when parents must place demands in order to improve their children's chances for independence, keep them safe, and teach them daily living skills. Providing parents and siblings with the necessary training for the implementation of these techniques will help prepare them to combat some of the secondary the symptoms of this disorder.

Purpose

The primary purpose of this study is to determine whether parents who are trained to act as behavioral change agents in the home will effectively increase their child's compliance to task demands proven to have a low probability for completion. Parents will be trained to implement individualized behavioral momentum strategies in order to increase compliance to specific task demands chosen for their low probability of completion. Of secondary interest is the theory that an increase in compliance to task demands will produce a concomitant reduction in the maladaptive behavior often associated with these demand situations. Sensitizing parents to environmental factors (setting events) that may exacerbate problem behavior could de-escalate or prevent the maladaptive behavior that may occur when a child with ASD is placed in certain demand conditions.
Research Questions

1. Can parents of children with autism learn to implement a behavioral intervention?

2. Can teaching parents to act as behavior change agents in the home increase their child’s compliance to low probability requests?

3. What effect does a child’s frequency of compliance have on his or her inappropriate behavior?

4. Will compliance to low-\( p \) requests generalize across settings and be maintained weeks after the intervention is no longer implemented?

5. What is the parent’s level of satisfaction with this behavioral intervention for increasing compliance?

6. Is this parent-training package socially valid?
CHAPTER 2

METHOD

This chapter describes the study methods. The following sections are discussed: participants, settings, investigators, dependent variables, independent variables, training, data collection, materials, procedural integrity, interobserver agreement, experimental design.

Participants

The participants were an eleven-year-old Caucasian boy, Chris, who had been diagnosed with autism and functioned in the mild to moderate range of mental retardation, and his mother, Diana. Chris was the youngest of four children and was living with both of his parents. At school he was in a self-contained classroom for children with special needs and exhibited behavioral problems in the form of tantrums and aggression when put in demand situations. Diana was interested in participating in this study because she wanted to master strategies that would help minimize her son’s non-compliant behavior and increase his adaptive behavior skills. Chris was capable of following simple one or two step directions; if asked, “Show me the door,” he could point at or touch a door. He could also follow directions like, “Please pick up the toy and put it in the toy box.” The investigator secured a letter of support from Diana (see Appendix A) and written consent (see Appendix B) for participation in the study. This was obtained
after she was informed of the study procedures. A separate consent form was signed which allowed the investigator to videotape training and treatment sessions (see Appendix C). Chris receives additional professional services through the Nisonger Center for Mental Retardation and Developmental Disabilities.

Setting

The study was conducted in the participants’ home. Diana designated the family room as the place where the compliance-training occur. The room was a 16x 20 foot carpeted area, including a fireplace, a television, family room furniture, and an armoire where Chris’s toys were kept. The compliance trials were scheduled during the time period when Chris seemed to exhibit a high frequency of non-compliant behavior to requests and during a convenient time for the family. This was usually just before dinner, at approximately 6:00 p.m. However, there was some variance in what time sessions occurred, which was related to changes in the family routine. The baseline generality probe was conducted at Chris’s respite care camp as the study began at the end of July 2003 and school was out for the summer. The post intervention generality probe was taken at Chris’s school after completion of the intervention strategy.

Investigators

The investigator earned a bachelor’s degree in psychology from Ohio Wesleyan University in 1998 and is seeking a master’s degree in the Special Education/Applied Behavior Analysis program at The Ohio State University. She is a research associate at The Ohio State University’s Nisonger Center for Mental Retardation and Developmental Disabilities. The co-investigator is a second year doctoral student in the Special Education/Applied Behavior Analysis program. She is a certified teacher in English and Special Education.
Dependent Variables

There were five dependent variables measured in this study: 1) the parent’s ability to correctly implement an effective intervention in the home, 2) the frequency of the child’s compliance to low-p requests, 3) the maintenance and generalization of the child’s compliance to low-p requests, 4) the frequency of the child’s inappropriate behavior, and 5) the social validity of the intervention.

Procedural Accuracy and Effectiveness

Diana’s ability to implement an effective intervention was measured by her adherence to the procedures listed in the Procedural Integrity Checklist (see Appendix D), by the frequency of Chris’s compliant behavior, by the maintenance and generality of his compliance, and by the frequency of inappropriate behavior. Diana was trained by the investigator to implement a compliance intervention package. This included three intervention strategies, environmental management, prioritizing reinforcement, and behavioral momentum. Diana was trained in each of the three areas to mastery, that is 100% accuracy prior to beginning the study.

Environmental Management

Diana was instructed to focus on environmental management. She was trained to recognize potential antecedents or setting events that could have an effect on Chris’s response to typical demand situations. Diana’s understanding of the three term contingency of learned behavior (antecedent-behavior-consequence) was measured once after an initial observation period (before intervention) and again at the completion of the final follow-up probe. Diana demonstrated her understanding of the three term contingency by providing verbal descriptions of antecedents and setting events and giving specific examples of her use of prevention strategies that worked to minimize Chris’s problem behavior. This definition corresponds with items’ (1) and (2) of the Procedure Integrity Checklist (see Appendix D).
Prioritization of Reinforcement

Instruction in the second strategy focused on the importance of prioritizing reinforcement when teaching a new skill and eliciting compliance. The concept of satiation was introduced and Diana was taught to re-assess Chris’s preferences throughout the intervention. Diana completed a Reinforcement Survey (see Appendix E) before intervention began in order to better determine potential positive reinforcers. Diana’s comprehension of the rules for positive reinforcement was demonstrated by her ability to re-assess Chris’s preferences and to determine which items were the most motivating at any given time. This definition corresponds with item (3) in the Procedural Integrity Checklist (see Appendix D) and was measured before the intervention and again after the final maintenance and generality probe.

Behavioral Momentum

The third strategy in which Diana received instruction consisted of a behavioral momentum sequence to use when teaching Chris new adaptive skills. The correct sequence was composed of three high-p requests and one low-p request. Diana demonstrated her ability for differentiating high-p requests from low-p requests on the Request Checklist (see Appendix F).

A high-p request was defined as a request that resulted in compliance 80-100% of the times presented. A low-p request was defined as a request that resulted in compliance less than 50% of the times presented. The investigators measured Diana’s ability to implement an accurate behavioral momentum intervention on the Procedural Integrity Checklist (see Appendix D, items 6-10). Efficacy was measured by frequency of compliance, frequency of inappropriate behavior, and maintenance and generality of compliance.
Definitions of Target Behaviors

Sharing

The first behavior that was targeted for intervention was Chris’s inability to share his toys with others in social situations. The item chosen for sharing was Chris’s toy cash register as he spent an inordinate amount of time playing with it while at the same time counting his play money. When engaged with the cash register Chris seemed to overlook the presence of others and ignored nearly all requests to share it. All high-$p$ requests were in regard to some aspect of the cash register. For example, Diana would ask Chris to “press the 2 button.” The targeted behavior or low-$p$ request was defined as Chris moving the cash register in the direction of another person after being asked to give it to him or her.

Throwing

The next behavior that was targeted for intervention was Chris’s inability to throw a ball to another while at play. Again, Diana was anxious to improve Chris’s ability to engage in appropriate play behavior in a social situation. In this intervention session the high-$p$ requests were based on Chris’s compulsion for unpacking his duffel bag (he packed some clothes, personal items, and 5 nerf balls). The second target behavior was defined as, when requested, Chris will make a move to get the ball to the other person by throwing or tossing it to him or her.

Shoes Off No Crying

Diana chose the final target behavior because of Chris’s obsession with his shoes. He compulsively wore his shoes, obsessing over them to such a degree that he wore them to bed every night. He would tantrum through his bath every morning because he had to remove them to bathe (he would however, wear rubber shoes in a pool). Chris was not potty trained and in order to change his pull up his parents or caregivers would have to remove his shoes. When this happened he would tantrum and become extremely agitated
until he got his shoes back. He often became so agitated that he started to
remove all of his clothing. He would take his clothes off and put them back on
repeatedly. Diana voiced a concern that Chris might contract athlete’s foot, as he was
never bare-footed. The third target behavior was defined as Chris taking his shoes off
without crying for at least 5 seconds. The high-\( p \) requests centered on his compulsion for
packing; Chris enjoyed packing clothes in suitcases.

Diana demonstrated the ability for choosing high-\( p \) and low-\( p \) requests, according
to the study operational definitions for compliance. She chose high-\( p \) requests that
centered on the compulsive behaviors that Chris often engaged in when playing with his
toys and personal items. These requests elicited 80-100\%\ compliance. For example, in
the sharing intervention high-\( p \) requests focused on Chris’s obsession with his cash
register. In the throwing and shoes off no crying intervention, all high-\( p \) requests focused
on his obsession for packing and unpacking. Diana also demonstrated the ability for
choosing low-\( p \) requests. These requests elicited 50\% or less compliance. This
definition corresponds to item (4) on the Procedure Integrity Checklist (Appendix D).

\textit{Definition of Compliance}

Compliance to high-\( p \) requests was defined as a response that matched a specific
high-\( p \) request without incidence of maladaptive behavior. Noncompliance to high-\( p \)
requests was defined as no response or a response that did not match the specific request.
Compliance to low-\( p \) requests was defined as a response that matched a specific low-\( p \)
request within 20 seconds of the request. Non-compliance was defined as not responding
to the low-\( p \) request within 20 seconds (latency period) or responding with a response
that does not match the response. This definition corresponds with item (4) on the
Procedural Integrity Checklist (Appendix D).
Definition of Inappropriate Behavior

Maladaptive behavior, initiated to demand, was specific to Chris based on his previous behavior patterns. Inappropriate behaviors engaged in during sharing and throwing the ball interventions were defined as screaming, yelling, throwing objects, hitting, kicking, biting, pulling hair, and the tearing of paper products (tearing his folder). Inappropriate behavior engaged in during the shoes off no crying intervention was defined as the removal of clothing, hitting, kicking, biting, or running away. Diana demonstrated her understanding of the definition of Chris's aggressive maladaptive behavior by noting when Chris exhibited behavior that could harm himself or others and determining to either continue or discontinue a session based on this knowledge.

Maintenance and Generalization

Once a target behavior was mastered (i.e., 80%-100% compliance) and the intervention period had ended, probes were conducted periodically to assess the maintenance of the behavior. The final maintenance probes were conducted approximately one month from the last intervention session. A probe was conducted at Chris's school to assess the generality of behaviors across settings, and people. His teacher presented the low-p requests to Chris.

Social Validity

Social validity was evaluated using the Participant Satisfaction Survey (see Appendix G). The survey was administered twice during the study, once early in the acquisition stage of parent training, which allowed the investigator an opportunity to make procedural adjustments early in the training and acquisition period, and again at the study's end.
Independent Variable

**Compliance Treatment Package**

The independent variable consisted of a compliance treatment package that included instruction in the concepts of the three term contingency of learned behavior, prioritizing reinforcement, and the implementation of a intervention strategy using behavioral momentum to increase compliance to requests in a child with ASD.

**The Three Term Contingency and Setting Events**

The intervention began with the investigator training Diana to use the ABC Tracking Sheet (Appendix H) and to recognize potential setting events. The investigator modeled the correct behavior using the form and gave an example that described the antecedent, behavior, and consequence of a behavior. Diana was asked to anecdotal record Chris’s behavior throughout the day over a period of one week and to list the antecedent events that preceded Chris’s non-compliant behavior and the consequences that followed it. Diana was instructed to track Chris’s behaviors during the most problematic time of the day throughout the next week and to try to determine what antecedent events and consequences had contributed to Chris’s behavior. At their next meeting the investigator went over the tracking sheet with the Diana and made recommendations for the elimination or avoidance of specific antecedent and setting events. This was integrated into a discussion of environmental management in the home. An example was Diana talking on the phone (antecedent), Chris going from window to window opening and closing the blinds (behavior), until Diana terminated the call and attended to him (consequence). In another instance, when Diana was making the bed
(antecedent), Chris went into the bathroom and poured hair gel on the floor (behavior), and Diana stopped making the bed and attended to him (consequence). After some discussion regarding the function of Chris's behavior, it was determined that when possible Diana would enlist the help of one of Chris's siblings to occupy him when she needed to make a phone call. This way Chris would be attended to and would be less likely to seek attention inappropriately by damaging the blinds. Diana explained that Chris could be very helpful around the house as he liked to take the trash out, pull weeds and fold clothes. Another recommendation to eliminate problem behavior when his mother was busy making the beds was to try to get him to help by teaching him the steps involved and reinforcing his progress.

It was explained to Diana that setting events are more complicated than the presence or absence of a stimulus and that behaviors can be the result of a number of causes. She then determined that a setting event became evident in the context of her child's morning bath. She noted that Chris's baths were especially difficult before he had taken his morning dose of medication. She determined that no medication in the morning set the occasion for more severe tantrums than when bathing him after he had taken his medication. This was a stimulus-response interaction that because it occurred, affected Chris's typical response to bath time. After some discussion Diana decided that she would consult with Chris's physician to see if he had any objection to her dispensing his morning dose at an earlier time, i.e., before his bath. She concluded that this would minimize his problem behavior at bath time. This exercise was designed to increase Diana's awareness of the types of environmental events that may influence Chris's behavior.
The investigator interviewed Diana and the respite camp counselor regarding Chris’s daily schedules in each setting (see Appendix J) to get a better understanding of the kinds of problems Chris was having. On the Daily Schedule Form (see Appendix J) Chris’s camp counselor rated his behavior on a scale of 1 to 6 with one being least severe and six being most severe. The camp counselor stated that the boy had the most difficulty during the mornings, and she rated his behavior a (4) on two of the four mornings that he had been at camp and a (3) on the other two mornings. She stated that after he had eaten his breakfast and had his medication he would begin to calm down. She rated his behavior at noon a (2) and at night a (1) indicating night as the least difficult part of the day. The camp counselor’s statement confirmed the problems that Chris was experiencing in the mornings before he received his medication.

Reinforcement

The investigator discussed with Diana the concept of possible satiation and the importance of prioritizing reinforcement items. A Reinforcement Survey (See Appendix E) was administered in order to establish items for reinforcement that were delivered immediately on a continuous schedule (within 5 sec of the compliant behavior) for compliance to both high- and low-p requests. The list of reinforcers included activities that Chris liked to participate in. He liked to eat at restaurants, go to church, take walks with his dad, and swim. Some tangible items Chris liked to play with that he did not have were a computer and a bike. Some of his favorite places to go included the zoo, the pool, the park, to church, and to the store. Some favorite people that Chris liked to spend time with were the neighbor kids, mom, and dad. Chris liked to be busy and had special chores
that he helped with around the house like taking out the trash, checking the mail, watering the outside plants, pulling weeds, vacuuming the floor, and filling the bird feeder. Finally, some primary reinforcers that Chris preferred included skittles, jelly beans, Twix bars, granola bars, potato chips, chocolate, and gum.

Initially, when implementing the sharing intervention sessions it became apparent that Chris was not motivated to perform even high-\( p \) requests systematically without some form of immediate reinforcement. The primary reinforcers were the most conducive to use in this behavioral intervention because of their ease in delivery and immediacy. Primary reinforcement was made available and contingent upon compliance to all high-\( p \) and low-\( p \) requests. Primary reinforcers were prioritized so that the most preferred items were made available for compliance to low-\( p \) requests (e.g., for high-\( p \) requests, jelly beans, skittles, potato chips; and for low-\( p \) requests, Twix bars, chocolate, gum, granola bars). Informal preference assessments were conducted periodically by Diana throughout the study (by offering a choice of reinforcers) to reevaluate the reinforcing effects of each preferred item and to minimize the chance of possible satiation. Diana was trained in the use of reinforcement to elicit compliance. All requests began with, “Chris I will give you a _____ if you…” Diana used only the most preferred items to elicit compliance to low-\( p \) requests.

\textit{Parent Training}

Parent training was conducted in the family home once the high-\( p \) and low-\( p \) requests were established through direct observation and interview. The investigator provided Diana with an oral and written presentation of the intervention procedures. The investigator modeled the procedures explaining the importance of each procedure to the
intervention. The investigator had Diana practice the procedures. During the practice the investigator assumed the role of Chris. The investigator modeled the high-\(p\) and low-\(p\) request sequences for Diana. The investigator conducted a brief preference survey and positive reinforcement was forthcoming after each correct response to all requests. Diana demonstrated 100% accuracy on the Procedural Integrity Checklist two consecutive times, constituting mastery of the intervention procedures. 1) The investigator modeled the sequence accurately. 2) A Reinforcement Survey (See Appendix E) was administered in order to establish items for reinforcement that were delivered immediately on a continuous schedule (within 5 seconds of the compliant behavior) for compliance to both high and low-\(p\) requests. However, in intervention two the high-\(p\) request sequences were modified for lack of effect and the sequence was changed to one low-\(p\) request following three high-\(p\) requests with no variation in sequence. The videotaped sessions allowed for investigator feedback if procedural drift became a problem.

*Behavioral Momentum*

Diana was trained and completed two consecutive practice sessions with 100% accuracy on the procedural integrity measures prior to beginning the intervention. Training sessions involved the investigator teaching the intervention procedures both verbally and by modeling. Diana was given the opportunity to practice the skills by role-playing the procedures with the investigator, who assumed the role of Chris. Once the intervention began, the investigator collected the procedural integrity data on 100% of the videotaped sessions. When Diana scored lower than 80% on the procedural integrity measure the investigator re-trained her to 100% accuracy.
The investigator explained the criteria for determining the high probability (80% or greater) and low probability (50% or less) of compliance to specific requests, and Diana completed the request checklist (see Appendix F). This was to aid her in identifying the behaviors to be targeted.

Diana was trained to mastery level to implement the compliance intervention procedures (see Appendix D). Training involved the investigator explaining the procedures, providing Diana with a written copy of the procedures, modeling the procedures, then having Diana practice the procedures with the investigator playing the role of Chris. The behavioral momentum procedure included Diana issuing a series of three high-\( p \) requests before making a low-\( p \) request (see Appendix D). Diana was also taught to praise Chris for responding appropriately (e.g., “Good job, Chris! You pushed the button!”). Initially, the plan was to use only social praise to motivate Chris to comply with high-\( p \) requests and primary reinforcement to motivate compliance to low-\( p \) requests. However, during “Intervention One” it became apparent after three of the compliance-training sessions that Chris needed more than social praise to comply to demands so primary reinforcers were added in order to increase Chris’s motivation to comply. During “Intervention Two” we utilized primary reinforcers to elicit compliance to both high-\( p \) and low-\( p \) requests across all compliance-training sessions. To minimize the possibility of satiation, the primary reinforcers were varied and only the most preferred items were used to elicit compliance to low-\( p \) requests. Diana was taught to use a stopwatch to begin the five-minute sessions and to determine the latency of compliance to requests. If the sequence was interrupted, Diana was taught to re-engage Chris with high-\( p \) requests prior to the presentation of a low-\( p \) request.
Diana demonstrated 100% accuracy on the Procedural Integrity Checklist two consecutive times in order to demonstrate mastery of the intervention procedures.

**Sharing Intervention Training**

Chris’s toy cash register was used to build behavioral momentum in the sharing intervention and led naturally to the low-p request using several different behavioral momentum sequences of three high-p requests and one low-p request per five minute session. Examples of the high-p requests included, “Push the two button,” “Scan your debit card,” “Count your money,” and “Close your cash register drawer.” The low-p request was “Give your cash register to Name.”

**Throwing Intervention Training**

Diana packed Chris’s duffel bag with various highly preferred items and five Nerf balls. She had him unpack the bag using several behavioral momentum sequences of three high-p requests and one low-p request per 5-min session. The last request was that he throw a ball to either herself or someone in the room.

**Shoes Off-No crying Intervention Training**

Chris was asked to pack his duffel bag with various preferred items. Last he would be asked to pack his shoes. This was done to avoid using the words “take your shoes off” which seemed to be an antecedent for tantrums. In the shoes off intervention, a behavioral momentum sequence was used but modified from the first two intervention sessions as initially Chris would lose total control when asked to remove his shoes and was unable to compose himself enough to comply with even high-p requests. The behavioral momentum sequence consisted of three high-p requests and one low-p request (only one sequence per 5-min session). Eventually, Chris calmed down, and Diana began
to introduce more sequences of behavioral momentum. Some high-\(p\) request sequences included, “Pack your folder in the bag,” “Pack your cash register in the bag,” “Pack your shorts in the bag,” and “Pack your money pouch in the bag.” The low-\(p\) request was “Pack your shoes in the bag.”

Materials

Parent Letter of Support (see Appendix A). The letter of support was sent to the parent when she was a potential participant to introduce the investigators, describe the study, explain her rights, and explain that they would be contacted regarding study participation as they had requested verbally.

Informed Consent Document (see Appendix B). This document explained in depth and in simple language the intent of the research and the risks and benefits that may apply to the study participants. Confidentiality issues are explained as well and the parent was assured that participation was completely voluntary.

Informed Consent Document for videotape recording (see Appendix C). This document explained the nature of the data collection procedure and the confidentiality issues that could arise. There is a statement as to the amount of time that the videotapes will be archived after study completion.

Procedural Integrity Checklist (see Appendix D). The integrity checklist is the main outcome measure of procedural integrity and was used to determine the parent’s mastery of the procedures described above.

Reinforcement Survey (see Appendix E). This survey was developed to aid the parent in determining and prioritizing her child’s preference items for reinforcing adaptive behavior.
Request Checklist (see Appendix F). This checklist was developed to assist the investigator and the parent in determining the behaviors to be targeted for intervention.

Participant Satisfaction Survey (see Appendix G). This survey consisted of the main outcome criteria to determine parent satisfaction of the intervention package and also helped determine the social validity of the treatment package.

ABC Tracking Sheet (see Appendix H). This was used to increase parental awareness of the antecedents and consequences of which problem behavior may be a function.

Parent Data Entry Diary (see Appendix I). The diary enabled the parent to collect data on the child’s compliance.

Daily Schedule (a) school (b) home (see Appendix J). Two schedules have been adapted, one for school and one for home. These daily schedules were used to assist the investigator during the early observation period when determining possible setting events and establishing operations (EO) of problem behaviors. This form was helpful in determining the most troublesome time of day when non-compliance was most prevalent.

Teacher’s Agreement to Cooperate (see Appendix K). With the parent’s consent, the investigator asked the child’s teacher to sign a voluntary agreement to cooperate with the study procedures.

Permission to Observe and Videotape (see Appendix L). The parent consented to the investigator observing and videotaping. This form was given to the child’s teacher so that the investigators could observe and videotape the child in the classroom.

Video Camera (JVC GR-DVL915U). This was used to tape all baseline, training, intervention, maintenance, and generalization sessions and probes.
Video Tapes (FUJIFILM Mini DVC Cassette). These were used in data collection.

Timex stop watch. This was used to measure latency of compliance.

Parent Data Entry Form & pencil (Appendix I). These were used to record data.

Primary Reinforcers. Jelly beans, Skittles, granola bars, potato chips, and Twix bars were used to elicit compliance.

Toy cash register. This was a preferred item used in the sharing intervention for delivering high-p and low-p requests.

Play Money. This was used in all three interventions for counting, unpacking, and packing.

Debit Card/Credit Card. These were used for pretend scanning on the toy cash register in the sharing intervention.

Black Duffel Bag. This was used for unpacking and packing preferred items in both the throwing and the shoes off no crying interventions.

5 Nerf balls. These were used in the throwing intervention.

Wallet. This was used for packing and unpacking in the throwing and shoes off no crying interventions.

Bank Money Bag. This was used for packing and unpacking in the throwing and shoes off no crying interventions.

Toy Calculator. This was used for packing and unpacking in the throwing and the shoes off no crying interventions.

Procedures

Diana was provided with a sheet (see Appendix I) and recorded the number of instances that Chris was both compliant to high- and low-p requests and the instances
was non-compliant. She was trained to record compliance data on the data collection form, and to use a stopwatch to record session time lapse, and specific latency periods. Diana was also trained in the correct procedure for issuing reinforcement for compliance to requests and to follow a behavior momentum sequence of three high-\(p\) requests before the issuance of a low-\(p\) request. Diana collected frequency of compliance to both high-\(p\) and low-\(p\) requests during each session. Interobserver agreement was taken on approximately one third of the videotaped sessions by a trained observer.

*Inappropriate Behavior*

While Diana collected data on Chris’s compliance during each session, inappropriate behavior data were collected and interobserver agreement was established on one third of all videotaped sessions by two trained observers. When Chris engaged in maladaptive behavior so severe to pose a threat to himself or others, Diana was instructed to intervene using behavior management strategies that were already in place in the home, and if necessary terminate the research session. If a low-\(p\) request was issued and the participant engaged in maladaptive inappropriate behavior, it was recorded as one incident of non-compliant behavior. Diana was trained to differentiate between inappropriate and maladaptive aggressive behavior. Inappropriate behavior is the non-compliant behavior that Chris uses to avoid completing the low-\(p\) request. Maladaptive behavior (for the purpose of this study) is considered inappropriate behavior or non-compliant behavior to low-\(p\) requests that is immediately dangerous to Chris or others.

*Baseline*

Family interactions were videotaped (with Diana’s consent) in the baseline condition. Diana had chosen three low-\(p\) requests that she had previously generated while
completing the Request Checklist (Appendix F). The investigator videotaped Diana while observing her make five low-\(p\) requests, one per minute in both the sharing baseline condition and the throwing baseline condition. It was decided that in the shoes off no crying baseline condition Diana would only make one low-\(p\) request per 5-min session because Chris’s anxiety level increased with each request to remove his shoes, and he began to remove all of his clothing. Total duration of the each of the three baseline sessions was 25 minutes. This included three 5-min sessions for each of the target behaviors with 5-min breaks in between. After each request Diana marked whether Chris complied with the request or was non-compliant. If Chris engaged in maladaptive aggressive behavior during the observation session Diana was told to use the established intervention procedure or to terminate the session at her discretion. Once a stable baseline or downward trend in the data points was established the treatment phase began.

**Intervention Phase**

Intervention 1 was implemented during the sharing intervention only and it consisted of three 5-min sessions with Diana presenting varied sequences of high-\(p\) requests before she presented a low-\(p\) request (e.g., 2 high-\(p\)’s prior to low-\(p\), 4 high-\(p\)’s prior to low-\(p\) etc). Chris received social praise for compliance to high-\(p\) requests and Diana provided primary reinforcement for compliance to low-\(p\) requests only.

Intervention 2 consisted of nineteen 5-min sessions with Diana presenting unvaried high-\(p\) request sequences (3 high-\(p\) requests and 1 low-\(p\) request). Diana made the request while offering primary reinforcement as a reward for compliance to both high-\(p\) requests and low-\(p\) requests, although the most preferred items were offered for compliance to low-\(p\) requests. During the intervention phase, either the investigator,
Diana, or Chris’s siblings video taped the request sequences. Diana administered the high-\(p\)/low-\(p\) sequence and offered immediate reinforcement (within 5 seconds) for compliance to both types of requests. After each compliant or non-compliant response, or after 5 seconds for high-\(p\) requests and after 20 seconds for each low-\(p\) request where no response has been elicited, Diana marked the type of request and the type of response on the form (see Appendix I). Diana was instructed to perform the request sequences in three separate five minute sessions with two five minute breaks in between sessions, for a total of 25 minutes of compliance-training per day. Diana made every effort to be consistent with the time; however, there was some minor time variations from session to session. The high-\(p\)/low-\(p\) sequence sessions were conducted approximately 2-3 times per week. The sequence was as follows: 3 high-\(p\) requests and one low-\(p\) request. The investigator monitored treatment fidelity while observing Diana conducting the intervention sessions or by watching the videotaped sessions that had been recorded.

Once behavioral momentum was established, and Chris increased compliance to low-\(p\) requests, up to 80% of the time, follow-up generalization probes will be conducted in and outside of the instructional setting when the intervention has been terminated. This was done in order to determine whether generality had occurred across individuals and settings. The investigator observed the interaction of Diana with Chris and collected data on compliance to low-\(p\) requests periodically during the month after the termination of the intervention phase of the study. This was done in order to determine whether the gains in compliance to low-\(p\) requests that were made during the intervention phase are still in effect. The investigator also observed Chris at his school in order to determine if compliance to low-\(p\) requests has been maintained over time.
Follow-up Probes

The maintenance and generality probes were conducted by the investigator in the school setting (see Appendix K). At Chris's camp the investigator requested that Chris share a toy with the counselor, throw a ball to the counselor, and take his shoes off. These data were collected before the baseline sessions were conducted. Pre-intervention probes for throwing and shoes off no crying behaviors continued throughout the ongoing sharing intervention. These consisted of a simple request to throw the ball to another party or by presenting the request "take your shoes off." After the completion of each intervention phase for each behavior, the investigator probed for maintenance of compliant behavior to low-\(p\) requests in the participants' school. Initially, Diana probed for sharing behavior by simply requesting that the participant give his cash register to another person. He did not readily comply. He had begun to perseverate by counting his money repeatedly. However, Diana persisted and began to utilize the behavioral momentum technique we had taught her while using primary reinforcers. It consisted of one sequence of three high-\(p\) requests followed by one low-\(p\) request. During all other subsequent sessions she continued to use this technique. The first time we conducted the throwing probe at Chris's home, the investigator threw the ball to Chris, and Diana requested that he throw it back to the investigator. During all subsequent probe sessions Diana asked him to throw the ball to whoever was there without them having thrown it first. Again, during the shoes off probe sessions Diana used one sequence of three high-\(p\) requests and one low-\(p\) request to elicit compliance. As was the case for all intervention sessions, requests in the probe sessions were preceded with an offering of a primary reinforcer (e.g., Twix bar, skittles, jelly beans, etc.) in order to elicit compliance. The
investigators probed for the generality of Chris’s compliance to low-\(p\) requests across settings and people at the participant’s school. Approximately four weeks after the last intervention session had been terminated, the teacher was asked to present the low-\(p\) requests to Chris (see Appendix J). This was to determine whether compliance to low-\(p\) requests had been maintained up to four weeks after the intervention had ceased and whether generalization across people and settings had occurred.

*Treatment Integrity*

Diana was trained by the investigator to administer the high-\(p\), low-\(p\) sequence. The investigator went over all high-\(p\) and low-\(p\) requests and modeled the sequence for each behavior. Diana was asked to model the request sequences, while the investigator offered feedback. She demonstrated 100% accuracy on the Procedural Integrity Checklist (see Appendix D) two consecutive times in order to demonstrate mastery of the intervention procedures. The investigator monitored all video-taped sessions for procedural integrity using the Procedure Integrity Checklist. Weekly visits were made to the home to observe, offer feedback, and answer any procedural questions that Diana may have had. Diana’s procedural integrity rating fell below the cutoff of 80% during one intervention session for each target behavior. The investigator then re-trained Diana to one hundred percent accuracy before restarting the intervention.

*Interobserver Agreement*

Diana acted as the intervention specialist and collected data on all intervention sessions including maintenance and generality probes. All of the sessions were videotaped and interobserver agreement of responding was measured by a trained observer on approximately one third of all compliance-training sessions. The observer
was trained to recognize the target behaviors and rated the videotaped sessions accordingly. The computations for agreements involved dividing agreements by the sum of agreements and disagreements and multiplying by 100. The two observers recorded the data on the tapes independently and interobserver agreement was established by dividing agreements by agreements plus disagreements then multiplying by 100.

Experimental Design

A multiple baseline design across behaviors (Cooper, Heron, & Heward, 1987) was implemented in order to evaluate the effect of this compliance intervention package. Elements of this package included high-\(p\) and low-\(p\) request sequences, continuous reinforcement of compliant behavior, and generalization probes conducted in both the participant’s homes and schools.

Social Validity

At the beginning of the study Diana filled out the Participant Satisfaction Questionnaire (see Appendix G), which consisted of answers that fall on a continuum from one to seven. The scoring was in a Likert scale format. Diana participated fully in the request selection process and this helped to increase the probability of participant satisfaction and improve the social validity of the intervention strategy. At the study’s end, Diana was again asked to fill out the Participant Satisfaction Questionnaire.
CHAPTER 3

RESULTS

Described in this section are study reliability, procedural integrity, and the results of the intervention on the dependent variables.

Reliability

Interobserver agreement was calculated on approximately one third of the compliance-training sessions. Included in the 32 behavioral momentum sessions were 96 low-\(p\) requests. Compliance, noncompliance and total agreement were calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Interobserver agreement was 88%, with a range of 0% to 100% (0 agreement was calculated on one probe or low-\(p\) request). Interobserver agreement was also calculated on inappropriate behavior exhibited. Agreement on inappropriate behavior was 90% with a range of 60%-100% (see Table 1).

Procedural Integrity

During the baseline observation period and at study end, Diana received a score of 100% on items 1 through 5 of the Procedural Integrity Checklist. She demonstrated an ability to use environmental management strategies to reduce Chris’s problem behavior.

Table 1 shows that procedural integrity data were taken on 19 sharing intervention sessions, 7 throwing intervention sessions, and 10 shoes off no crying intervention sessions for a total of 36, sessions.
<table>
<thead>
<tr>
<th></th>
<th>100%</th>
<th>80%</th>
<th>60%</th>
<th>Total Sessions</th>
<th>Mean Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharing</td>
<td>14</td>
<td>4</td>
<td>1</td>
<td>19</td>
<td>94%</td>
</tr>
<tr>
<td>Throwing</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>7</td>
<td>80%</td>
</tr>
<tr>
<td>Shoes off no crying</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>10</td>
<td>86%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>13</td>
<td>3</td>
<td>36</td>
<td>89%</td>
</tr>
</tbody>
</table>

**Table 1.** Procedural Integrity Results.

Procedural integrity for Diana ranged from 60% to 100%, (M = 89%) for all sessions. It should be noted that procedural integrity dipped to 60% during one session for each of the three targeted low-\(p\) requests the low-\(p\) requests, and at that time the investigator re-trained Diana to 100% accuracy before continuing the intervention. With the exception of the three session where procedural integrity dropped to 60% all of the sessions ranged from 80% to 100% (see Table 1).

**Dependent Variables**

*Baseline*

Data collected on percentage of appropriate responses to low-\(p\) requests are depicted in Figure 1. Percentages were calculated from the total number of correct responses to all low-\(p\) requests per 5 minute session (5 low-\(p\) requests in 5 minutes for a total of 15). During baseline (sessions 1 through 3) Chris’s percentage of compliance during each session was low and stable, across all three target behaviors.
Sharing Intervention

Intervention 1

Sessions 4 through 6, Intervention 1 was implemented and 17 low-p requests were presented during three, 5 minute sessions. Chris’s compliance was 0 (see Figure 1). Intervention 1 (i.e., no reinforcement for high-p requests) was only implemented during the sharing intervention.

Intervention 2

Intervention 2 had 22 sessions. Chris’s medication dose was adjusted at Session 24. Sessions 7 through 28 Chris could receive reinforcers for compliance to high-p requests and highly preferred reinforcers for low-p requests in a modified version of the initial behavioral momentum intervention. Chris’s compliance to low-p requests per 5 minute session ranged from 0% to 100%, (M = 59.3%). Of the 109 low-p requests presented, Chris was compliant to 68 requests (62.3%) (see Figure 1).

Follow-up Probes

Follow-up probes were conducted during sessions 31 through 38. Chris’s compliance to the follow-up probes ranged from 50% to 100% (M = 94%). One low-p request was presented during each probe in all but session 32; (two requests were made). There were a total of 9 low-p requests. Chris complied to 8 out of the 9 requests (88%). Follow up probes were conducted at approximately 4 days, 1 week, 2 weeks, 4 weeks, 5 weeks, and 6 weeks after the final Intervention 2 session, Session 27. A generality probe was conducted at session 31, Chris’s compliance was 100%.
Throwing Intervention

Baseline

There were 15 low-\( p \) requests during baseline Sessions 1 to 3. Baseline probes were continued during sessions 9, 10, 15, and 16 for a total of 19 low-\( p \) requests. Chris complied to 0 requests (see Figure 1).

Intervention

Chris’s medication dose was adjusted at session 24. During sessions 20 through 26 Chris’s percent compliance per 5 minute session ranged from 20% to 100% (\( M = 73 \) %). There were a total of 39 low-\( p \) requests. Chris complied to 29 requests. His compliance was 74% (see Figure 1).

Follow-up Probes

Follow up probes were conducted during sessions 31 through 38. There were 8 low-\( p \) requests presented. Chris complied to 8 requests. His percentage compliance was 100%. Probes were taken at approximately 2 weeks, 3 weeks, 4 weeks, 6 weeks, 7 weeks and 8 weeks after the final Intervention 2 session, Session 26 (see Figure 1). A generality probe was conducted at session 20, Chris’s compliance was 100%.

Shoes Off No Crying Intervention

Baseline

There were 3 low-\( p \) requests presented during baseline (sessions 1 to 3). Baseline probes were continued during sessions 10, 14, 16, 21, and 23 for a total of 8 low-\( p \) requests. Chris’s complied to 0 requests (see Figure 1).
Sessions 28 through 37 Chris’s percent compliance per 5 minute session ranged from 0% to 100% (M = 55%). There were a total of 39 low-p requests. Chris complied to 24 requests. His compliance was 62%. Session 24 Chris’s medication dose was adjusted.

Follow-up Probes

Follow-up probes were conducted during sessions 38 to 42. There were 5 low-p requests presented. Chris complied to 5 requests. His percent compliance was 100%. Probes were taken at approximately 1 week, 2 weeks and 3 weeks, after the final intervention session (37). A generality probe was conducted at session 21, Chris’s compliance was 100%.
Figure 1. Chris’s compliance. IV 1, varied sequences and social praise. IV 2, invariant sequences and primary reinforcement.
Inappropriate Behavior

Inappropriate behavior was calculated on one third or 34 randomly selected behavioral momentum sessions. The frequency of inappropriate behavior with compliance and noncompliance to low-p requests during baseline, intervention and probe sessions is shown in Figures 2 and 3.

Noncompliance

Noncompliance to high-p requests was defined as no response or a response that did not match the specific request. Non-compliance was defined as not responding to the low-p request within 20 seconds (latency period) or responding with a response that did not match the response. For shoes off no crying sessions non-compliance was considered crying yelling or screaming when Chris took his shoes off. This definition corresponds with item (4) on the Procedural Integrity Checklist (Appendix D).

Sharing. Out of 2 randomly selected baseline sessions including 10 low-p requests Chris engaged in inappropriate behavior 1 time with noncompliance to low-p requests 10%. Out of 2 “intervention 1” sessions for sharing behavior including 10 low-p requests Chris engaged in inappropriate behavior zero number of times with noncompliance to low-p requests 0%. Out of 5 “intervention 2” sessions for sharing behavior including 24 low-p requests Chris engaged in inappropriate behavior zero number of times with noncompliance to low-p requests 0%. Out of 4 follow-up probes including 4 low-p requests Chris engaged in inappropriate behavior 1 time with noncompliance to low-p requests 25%.
Figure 2. The percentage of inappropriate behavior with noncompliance to low-\(p\) requests. *Number of opportunities (low-\(p\) requests) for inappropriate behavior.
Figure 3. Percentage of inappropriate behavior with compliance to low-\(p\) requests. * Number of opportunities (low-\(p\) requests) for inappropriate behavior.
Throwing. Out of 2 (randomly selected) baseline sessions for throwing behavior including 12 low-p requests Chris engaged in inappropriate behavior 4 times with noncompliance to low-p requests 33%. Out of 4 intervention sessions for throwing behavior including 22 low-p requests Chris engaged in inappropriate behavior 4 times with noncompliance to low-p requests 18%. Out of 2 follow-up probes Chris engaged in inappropriate behavior 0 number of times with noncompliance to low-p requests 0%.

Shoes Off No Crying. Out of 2 randomly selected baseline sessions for shoes off no crying behavior including 4 low-p requests Chris engaged in inappropriate behavior 1 time with noncompliance to low-p requests 25%. Out 4 intervention sessions for shoes off no crying behavior including 15 low-p requests Chris engaged in inappropriate behavior zero number of times with noncompliance to low-p requests 0%. Out of 2 follow-up probes for shoes off no crying behavior Chris engaged in inappropriate behavior 0 number of times with noncompliance to low-p requests 0%.

Compliance

Compliance to high-p requests was defined as a response that matched a specific high-p request. Compliance to low-p requests was defined as a response that matched a specific low-p request within 20 seconds of the request (or when shoes off, no crying for 5 seconds or more).

Sharing. Out of 2 randomly selected baseline sessions including 10 low-p requests for sharing behavior Chris engaged in inappropriate behavior zero number of times with compliance to low-p requests 0%. Out of 2 “Intervention 1” sessions for sharing behavior including 10 low-p requests Chris engaged in inappropriate behavior zero
number of times with compliance to low-\(p\) requests 0%. Out of 5 “Intervention 2” sessions for sharing behavior including 24 low-\(p\) requests Chris engaged in inappropriate behavior 1 time with compliance to low-\(p\) requests 4%. Out of 4 follow-up probes including 4 low-\(p\) requests Chris engaged in inappropriate behavior 1 time with compliance to low-\(p\) requests 25%.

*Throwing.* Out of 2 baseline sessions and 2 baseline probes for throwing behavior including 12 low-\(p\) requests Chris engaged in inappropriate behavior zero number of times with compliance to low-\(p\) requests 0%. Out of 4 intervention sessions for throwing behavior including 22 low-\(p\) requests Chris engaged in inappropriate behavior 4 times with compliance to low-\(p\) requests 18%. Out of 2 follow-up probes for throwing behavior Chris engaged in inappropriate behavior zero number of times with compliance to low-\(p\) requests 0%.

*Shoes Off No Crying.* Out of 2 baseline sessions for shoes off no crying behavior including 4 low-\(p\) requests Chris engaged in inappropriate behavior zero number of times with compliance to low-\(p\) requests 0%. Out of 4 intervention sessions for shoes off no crying behavior including 15 low-\(p\) requests Chris engaged in inappropriate behavior zero number of times with compliance to low-\(p\) requests 0%. Out of 2 follow-up probes for shoes off no crying behavior including 2 low-\(p\) requests Chris engaged in inappropriate behavior zero number of times with compliance to low-\(p\) requests 0%.

*Social Validity*

When surveyed midway through and after the compliance intervention (see Appendix G, Participant Satisfaction Survey) Diana described the demands placed upon
herself and her family as a result of all intervention components as acceptable. Diana described the length and the duration of the compliance-training package as appropriate both midway and after the intervention. Midway through the intervention Diana stated that she would recommend the intervention strategies to her friends and relatives. Following the intervention she stated that she would strongly recommend the intervention to her friends and relatives. Midway through the intervention Diana described her overall satisfaction with the quality of the compliance-training package as satisfied. Following the intervention she described it as very satisfied. Midway through the intervention Diana described the major problems that prompted her to begin treatment as slightly improved. Following the intervention she described them as improved. Midway through the intervention Diana’s feelings about Chris’s progress to that point was slightly dissatisfied (this was during the period of dosing adjustment). However, following the intervention she described her feelings as satisfied. Midway through the intervention Diana described her outlook for Chris’s future as neutral. Following the intervention she described her outlook for Chris’s future as optimistic. When describing what she liked most about the compliance intervention training, Diana stated that it was “effective and manageable,” midway through the intervention. Following the intervention Diana stated that she liked the intervention because “it works.” The thing that Diana liked the least about the intervention midway through the sessions was that her other children were often noncompliant about helping out with the intervention. Following the intervention Diana stated that she least liked the intervention because “it takes so much time”.

59
She stated that "this was sometimes hard." Midway through the intervention Diana was asked for some examples of Chris’s increased compliance and she stated "He has a very difficult time taking off his shoes – even in bed, but now sleeps in his slippers. That’s progress!" Following the intervention Diana stated that "Chris can take his shoes off without screaming. He is beginning to initiate play with others."
CHAPTER 4

DISCUSSION

This chapter contains an analysis of the research questions, study limitations, suggestions for future research and a summary of the study. The purpose of this study was to examine whether training the parent of a child with autism to implement a behavior intervention strategy in the home would be effective in increasing their child’s compliance in demand situations and in developing adaptive skills.

Can parents of children with autism learn to implement a behavioral intervention?

This study showed that a parent of a child with autism could implement effective behavioral intervention strategies and increase the child’s compliance to low probability requests. Overall, Diana’s effectiveness in implementing the compliance-training package is encouraging. During the baseline observation period Diana demonstrated an understanding of the three term contingency of learned behavior. She could define the behaviors that had been targeted for intervention, the antecedents that preceded them, and the consequences that followed them. Diana commented that she has become much more aware of the problems that can arise in Chris’s environment and has used this newly acquired knowledge to minimize the effects of setting events. Diana provided an example of her newly developed skill when she contacted Chris’s pediatrician to check the feasibility of moving Chris’s morning medication dose to precede his bath time (which was a problematic time of day for Chris) instead of following it. This study
confirmed the finding by Northrup et al., (1997), that medication treatment could act as an establishing operation for some reinforcers and that the identification and control of a child’s medication status may be essential for identifying the most effective reinforcers.

This study found that a parent could successfully be trained to implement a behavioral intervention strategy. Diana consistently implemented the behavioral momentum strategy with a mean accuracy of 89%. Procedural integrity dipped below 80% accuracy on three separate occasions. According to observational data collected, these sessions fell early in the intervention phase of the study for each target behavior and it is quite possible that an extinction burst was the cause of Chris’s increase in inappropriate behavior during these sessions. It became a challenge for Diana to implement the behavioral momentum strategy accurately when Chris’s behavior was unmanageable. When Diana’s accuracy fell to 60% she was retrained prior to the next experimental session. The drop in accuracy of procedural integrity may indicate a need for continued support to parents who are trained as behavior change agents. It is not known if Diana would have corrected her behavior on her own without feedback from the experimenter. Professionals should be aware when training parents to implement behavioral intervention strategies that they need to periodically check with the parent to ensure procedural integrity.

Can teaching parents to act as behavior change agents in the home increase their child’s compliance to low probability requests?

This study showed that Diana was able to use the compliance-training package effectively in order to increase Chris’s compliance to low-p requests and adaptive skills. For sharing behavior Chris’s mean percent compliance increased from 0% at baseline to
59.3%. For throwing Chris’s mean percent compliance increased from 0% to 74%, and for shoes off no crying Chris’s mean percent compliance increased from 0% to 55%. These data have important implications for training parents as behavioral change agents. Diana was trained to be a successful behavior change agent as she learned strategies to increase important adaptive behaviors by implementing an environmental management plan, delivering reinforcement for compliance and building behavioral momentum.

In sharing Intervention 1 Diana was taught to implement varied sequences of high-p requests. These were introduced without primary reinforcers for compliance. The varied momentum sequences were ineffective at producing compliance and were replaced in intervention 2 with an invaried sequence of requests. This finding seems to challenge those of Davis and Reichle, (1996) as they indicated that variant high-p sequences were more effective in producing increases in compliance to requests than invaried sequences.

Diana also grasped the importance of prioritizing reinforcement items and the concept of satiation. It became obvious soon after implementing Sharing Intervention 1, that Chris was not going to comply to even the high-p requests as social praise was not motivating enough to build behavioral momentum. In order to minimize possible disappointment with the compliance treatment package and to maximize Diana’s potential for success we added primary reinforcers to the compliance treatment package. Although a formal preference assessment was not conducted, with the help of the reinforcement survey (see Appendix E) Diana was able to list Chris’s most preferred primary reinforcers. Throughout Intervention 2, she referred to this list and added new reinforcers as Chris’s appetite for preferred items waned. This confirms the research conducted by Mace, et al., (1997) who studied the effects of reinforcer quality on
behavioral momentum sequences. Their research showed a consistent relationship between reinforcer quality and behavioral momentum. The current study also extends this research and has implications for parents of children with autism who need to learn the necessary skills to aid in the development of their child’s adaptive skills. This study validates that parents can be trained to issue the momentum sequences while offering primary reinforcement.

The combination of environmental management, behavioral momentum, and positive reinforcement, have proved to be an effective strategy that parents can utilize when eliciting compliance and teaching adaptive skills. This study supports the growing body of literature which demonstrates that presenting a sequence of high-$p$ requests prior to the presentation of a low-$p$ request increases the likelihood of eliciting a response to the low-$p$ request (Mace, Hock, Lalli, West, Belfiore, Pinter, Brown, 1988; Mace & Belfiore 1990; Davis, Brady, Williams, & Hamilton 1992; Ducharme & Popynick, 1993; Davis, Hamilton, McEvoy, & Williams, 1994; Ducharme & Worling 1994; Mace, Mauro, Boyajian, Eckert, 1997).

What effect does a child’s frequency of compliance have on inappropriate behavior?

According to Ducharme and Popynick, the development of compliance may be sufficient for the promotion of behavioral gains in other areas. They conducted a study in which a compliance-training package including a behavioral momentum component was effective in decreasing concomitant maladaptive behavior while increasing compliance to low-$p$ requests.

The current study findings indicate that generally this is true. Chris showed a higher percentage of inappropriate behavior with noncompliance during baseline sessions.
for all three target behaviors as compared to the intervention and maintenance probe sessions. It should be noted that in spite of the increase in low-p requests during the intervention condition there was not an increase in the percentage of inappropriate behavior. However, percentage of inappropriate behavior with compliance was at 25% (1 out of 4) during the sharing follow-up probes and 45% (approx 11 out of 22) during the throwing intervention sessions. These data may be skewed in that the data for inappropriate behavior were not collected on all sessions. We selected a random sample of 34 sessions including baseline, intervention, and maintenance probes, to determine inappropriate behavior with compliance and noncompliance.

Will compliance to low-p requests be maintained and generalize across settings? The finding that generalized compliance to the three low-p requests across people and settings is very encouraging. Diana was able to provide an extensive amount of reinforcement both in social praise and primary reinforcement for compliance. The combination of reinforcement and behavioral momentum provided Chris with enough motivation to comply to low-p requests. Eventually, Chris was able to generalize the behavior from his home to his classroom and with his teacher.

Compliance to low-p requests was maintained several weeks after the final intervention session for each target behavior (sharing and throwing, 6 weeks, and shoes off no crying, 3 weeks).

Is this parent training package socially valid?

Diana provided positive feedback regarding the compliance-training package on the “Participant Satisfaction Survey.” Her overall level of satisfaction with the compliance-training package was described as “very satisfied” when the intervention was
complete. She was also encouraged when she thought about Chris’s future situation and the possibility that he might live independently someday. Diana felt that a draw back to the compliance-training package was the time it took for implementation. She also stated that although initially Chris’s siblings helped out with the training sessions, after a while the novelty faded and they were reluctant to help. It became a struggle for Diana to get her other children to comply with the demands of a session. Mom used some of the reinforcement training she had received to motivate Chris’s siblings to comply (i.e., if you help with this I will take you to the mall). This has implications for busy parents who may be interested in using this strategy to increase their child’s compliance to low-\(p\) requests. One problem that would be eliminated in an applied setting was the videotaping of sessions. During the study it was necessary for either the investigator or another member of Chris’s family to tape each session. Initially we planned to have Diana collect data on Chris’s inappropriate behavior, but eventually realized that the data collection on inappropriate behavior would add to the burden of data collection of compliance to low-\(p\) requests.

Diana thought that it was sometimes hard to implement the intervention along with all her other responsibilities. This has implications for all parents who have busy schedules yet want to instruct their child in a way to elicit compliance.

Diana’s continued use of these strategies when teaching adaptive skills to Chris means that she has been naturally reinforced for employing them and this increases the social validity of the intervention and the likelihood that Diana will continue to use them. Diana stated that she would also recommend the intervention to her friends and relatives.
Limitations

It is possible that a different result may have emerged following Intervention 1 if data had been more systematically collected on high-p requests prior to beginning the intervention phase. High-p request sequences were determined with the aid of the Request Checklist (see Appendix F) and parent observation and interview. Diana determined high-p requests after an initial observation period when issuing requests during one on one play periods with Chris. Diana believed she would have the best chance of eliciting compliance if the focus of the high-p requests related to Chris's obsessions with some preferred items. According to Diana, Chris would spend at least 80% of his play time each day either packing and unpacking his duffel bag, or playing with his cash register and his play money. The high-p requests were related qualitatively to these compulsions. Contrary to Davis & Reichle's (1996), findings, it seemed that the invaried sequences of high-p requests increased compliance, as opposed to varied sequences. However, we cannot state unquestionably that the invaried high-p sequences implemented in sharing Intervention 2 increased compliance, as at the same time reinforcement was implemented.

Another obvious limitation to this research however, is the addition of primary reinforcement for requests issued during a behavioral momentum sequence. It would be difficult to make the case that behavioral momentum alone is an effective tool for increasing compliance in children with autism unless Diana had continued the experiment without the additional reinforcement. The addition of primary reinforcement leaves us pondering the weighted effectiveness of one strategy over the other.
Time of day varied when some of the sessions were conducted due to the family schedule and time of day was not controlled for. If the schedule would have been consistent maybe the results would have been different. Time of year was another issue. The study began in the summer and finished in December of 2003 just before the holiday. This may have effected the outcome.

Future Research

In order to comfortably endorse one compliance treatment strategy over the other, future research should highlight the effectiveness of either reinforcement alone or an intervention with behavioral momentum sequences and social praise for compliance as this would echo more logically the natural environment. In an applied sense, the compliance treatment package may be more beneficial to parents who often need a surplus of compliance strategies at their finger tips when teaching new skills to their children with autism. The goal of this research study was to provide parents with effective behavioral intervention strategies to be used in conjunction with one another for the reduction of problem behavior and the increase of adaptive behavior.

The intervention terminated on a CRF schedule of reinforcement. Another possibility for future research would be to fade reinforcement to an intermittent schedule and to vary the high-p request sequences. A researcher could choose one specific component in the compliance treatment package on which to focus his or her research. Fading the behavioral momentum sequences and or the schedule of reinforcement may increase the generality and maintenance of the behavior and limit the possibility of satiation, as this would more closely mimic the natural environment. Finally, future research could involve more parents, or those who have children of different ages.
Summary

The purpose of this study was to determine the feasibility of instructing and training the parent of a child with autism to become a behavioral change agent in the home. The study sought to assess whether training a parent to become an environmental manager, in the delivery of positive reinforcement, and in behavioral momentum sequences, would increase compliance to requests and decrease inappropriate behavior. A multiple baseline across behaviors design was conducted to demonstrate the functional relationship between dependent variables and independent variables. This study consisted of baseline, Intervention 1 (social praise for high-p requests and varied behavioral momentum sequences), Intervention 2 (primary reinforcers delivered for high-p requests as well as low-p requests and in varied behavioral momentum sequences) and follow-up probes to measure maintenance and generality. Data were collected for compliance on 287 low-p requests and data collected for inappropriate behavior was taken on 95 low-p requests (1/3). Results of this study indicate that parents can become behavioral change agents in the home.
REFERENCES


APPENDIX A

PARENT LETTER OF SUPPORT
Dear (Parent)

I am a master’s candidate in the Applied Behavior Analysis special education program at the Ohio State University. I am in the process of planning my thesis research, which I will be conducting in your home (if you agree to give your consent). I will be conducting this research under the supervision Dr. Ralph Gardner, Associate Professor, at the school of Physical Activity and Educational Services at The Ohio State University. I am writing to you to explain my research and to ask for your permission to include your child in my study. The following is a description of the study I am planning to conduct, along with an explanation of your rights.

This study will involve your voluntary participation. As parent to (name) you will be asked to act as a behavior specialist in your own home. The purpose of this study is to demonstrate that you as a parent, can be trained to effectively introduce behavioral strategies which will increase your child’s compliance to specific requests made by you and others in the community.

Initially, I could conduct a training session that would help you to pin point just when your child’s problem behavior is most prevalent across situations and times throughout the day. We will discuss how your child’s daily schedule may be arranged in order to minimize the effects of events in the environment which could possibly provoke maladaptive behaviors and initiate non-compliance to certain task demands. Next, if you agree, I could train you to implement a behavioral strategy that is based upon a theory termed “behavioral momentum.” Together, you and I would agree upon 20 requests that (name)
is readily willing to perform, and often completes throughout the course of a day. We will also agree upon 10 requests that (name) is not so willing to do. I would train you to implement this strategy in order to increase (name’s) compliance to demands that in the past, he has been unwilling to perform. You would execute this strategy by making a number of requests that (name) is willing to do, and then requesting (name) to complete a demand that he has been unwilling to do. I will explain to you how to sequence these demands in order to achieve compliance to all demands. We will also, conduct a preference assessment and choose items that (name) really likes. We would use these items as rewards when (name) has performed demands.

If you are interested in participating in this study, please call me at either 614-247-6402, or at 740-548-4910, so that we may set up the first appointment. At our initial meeting, I will provide you with a complete explanation of the study and will inform you of yours and (name’s) rights, and all that study participation will entail.

You are not obligated to participate in this research. You or (name) will not be penalized in any way for not participating. If you decide to participate, you have the right to withdraw from the research at any time without prejudice to you or (name). Data obtained will not be made a part of any permanent record that can be identified with you or with your child. I will be happy to share any results with you if you are interested.

Sincerely,

Jill A. Hollway

Master’s Candidate

Dr. Ralph Gardner
Associate Professor
The Ohio State University
APPENDIX B

INFORMED CONSENT DOCUMENT
CONSENT FOR PARTICIPATION IN SOCIAL AND BEHAVIORAL RESEARCH
CONSENT TO INVESTIGATIONAL TREATMENT OR PROCEDURE


Protocol number: __________

Principal Investigator: Ralph Gardner III, Ph.D.

DESCRIPTION OF THE RESEARCH:

1. Description of the procedure or treatment. Reason for performing this procedure or treatment.

This consent form may contain words that I do not understand. I will ask the investigator to explain any words or information that I do not clearly understand. I may keep an unsigned copy of this consent form to think about or discuss with my family or friends before making a decision.

The purpose of this consent form is to explain to me what will be asked of me and my child should I decide to participate in this study. I understand that my participation is strictly voluntary.

The primary purpose of this study is to determine whether I can be trained to implement behavior strategies in my home and effectively increase my child’s compliance to task demands. I will be trained to implement sequences of high probability requests (demands that my child is likely to comply with) with low probability requests (demands that my child is unlikely to comply with). I will make these requests in order to see if my child will comply with task demands that otherwise show a low probability (low likelihood) for completion.

I am being asked to participate in this study because I have a child with Autism Spectrum Disorder (ASD) who is non-compliant to certain task demands. I am willing to be trained to implement this compliance treatment package.

2. Participation in this study is optional and voluntary. Possible appropriate alternative procedures or treatment are: a) not to participate in the study, b) medication treatment

3. Discomforts and risks that might reasonably be expected from participation in this study.
When placed in demand situations there is a possibility that a study participant will engage in maladaptive behavior that is so severe that it would pose a threat to himself/herself (i.e., head banging) or others (i.e., throwing objects). In this case the family will use behavior management strategies that are already in place in the home and that session will be terminated.

Confidentiality could be an issue as I will be observed and videotaped in my home as I demonstrate the ability to carry out high probability and low probability request sequences. These tapes will be kept in a locked cabinet for 3 years and only the investigator and his/her designee’s will have access to them.

4. Possible benefits for participants or for society.

If the proposed research is shown to be an effective strategy for increasing compliance in my child with ASD, it would benefit both my child and myself. It would benefit my child because he/she would be more receptive to learning some necessary daily living skills that would promote my child’s independence. This newly acquired independence would benefit me as childcare would become less involved and there would be more free time to pursue other necessary activities.

5. Estimated amount of time it will take (number of sessions; length of each session, period of time).

I understand that the initial observation session, the baseline session and the parent training sessions will each take approximately an hour. The intervention sessions will take 30 minutes four times per week for approximately 10 weeks. This does not include the two generality probe sessions that will be conducted at weeks 12 and week 14. The probe sessions will be approximately 30 minutes in duration.

6. Use of audiotapes, videotapes or photographs to collect information for this study.

I also, understand that videotaping will be conducted during this study and that the investigator and his/her designee’s will have access to these tapes. It is my understanding that these tapes will be kept in a locked file cabinet for 3 years.

7. Access to archival records such as academic records or medical records. List the information that will be obtained from these sources.

I will voluntarily sign a release of information so that my child’s teacher can be of service to the investigators and offer information regarding my child’s compliance to requests.

CONSENT:
I consent to my participation in and my child's participation in the research being conducted by Dr. Ralph Gardner of The Ohio State University and his/her assistants and associates.

The investigator(s) has explained the purpose of the study, the procedures that will be followed, and the amount of time it will take. I understand the possible benefits, if any, of my participation (and/or my child's participation).

The investigator(s) has explained the risks, if any, and I understand what they are. No guarantees have been made regarding the effectiveness of this treatment or procedure.

I know that I can (and/or my child can) choose not to participate without penalty to me (or my child). If I give my consent to participate, I can (and/or my child can) withdraw from the study at any time, and there will be no penalty.

I consent to the use of audiotapes and/or videotapes. I understand how the tapes will be used for this study.

I have had a chance to ask questions and to obtain answers to my questions. I can contact the investigators at 614-247-6402. If I have questions about my rights as a research participant I can call the Office of Research Risks Protection at (614) 688-4792.

I understand in signing this form that, beyond giving consent, I am not waiving any legal rights that I might otherwise have. My signature on this form does not release the investigator, the sponsor, the institution, or its agents from any legal liability for damages that they might otherwise have.

I have read this form or I have had it read to me. I sign it freely and voluntarily. A copy has been given to me.

Print the name of the participant: ____________________________________________________________

Date: __________________________________________ Signed: ________________________________ (Participant)

Signed: __________________________________________ (Principal investigator or his/her authorized representative)

Signed: __________________________________________ (Person authorized to consent for participant, if required)

Witness: __________________________________________ (When required)
APPENDIX C

INFORMED CONSENT FOR VIDEOTAPEING
CONSENT FOR VIDEOTAPEING IN MY HOME FOR SOCIAL AND
BEHAVIORAL RESEARCH

Protocol title: Fostering Behavioral Momentum in the Home: Parents as Behavioral
Change Agents and the Implications for Families of Children with Autism

Protocol number: 2003B0151
Principal Investigator: Ralph Gardner III Ph.D.

I consent to my and my child's participation in research being conducted by Dr.
Ralph Gardner of The Ohio State University and his/her assistants and
associates.

The investigator(s) has explained the purpose of the study, the procedures that
will be followed, and the amount of time it will take. I understand the possible
benefits, if any, of my participation (and/or my child's participation).

I know that I can choose not to participate without penalty to me or my child. If I
agree to participate, I can withdraw from the study at any time, and there will be
no penalty.

I consent to the use of audiotapes and/or videotapes. I understand how the
tapes will be used for this study.

I have had a chance to ask questions and to obtain answers to my questions. I
can contact the investigators at 614-247-6402. If I have questions about my
rights as a research participant, I can call the Office of Research Risks Protection
at (614) 688-4792.

I have read this form or I have had it read to me. I sign it freely and voluntarily.
A copy has been given to me.

Print the name of the participant: ____________________________________________

Date: ___________________________ Signed: ____________________________
(Parent)

Signed: ____________________________
(Principal investigator or his/her authorized representative)

Signed: ____________________________
(Parent, if required)

Signed: ____________________________
(Co-pl)
APPENDIX D

PROCEDURAL INTEGRITY CHECKLIST
Parent Training (Intervention 1)  
Procedure Integrity Checklist  

Parent Name ____________________________  Date ________________________

Complete the checklist after each home visit and on at least one third of the videotaped behavioral momentum sessions. Have separate trained observer check procedural integrity.

Rating Scale  
0 = Incorrect procedure  
1 = Correct Procedure

1. Parent demonstrated an understanding of the ABC’s of learned behavior (filled out form gave examples of their child’s behavior).  
0 / 1

2. Parent demonstrated an understanding of the effect that the environment has on his/her child’s behavior (instituted schedule change).  
0 / 1

3. Parent demonstrated the importance of prioritizing reinforcement items and the concept of possible satiation (utilized the reinforcement survey).  
0 / 1

4. Parent demonstrated an understanding of the target behaviors.  
defines what is and what is not a correct response to high-p requests  
defines what is and what is not a correct response to low-p requests  
0 / 1

5. Parent is able to differentiate escape behavior from maladaptive behavior and will utilize existing strategies for inhibiting the escalation of a maladaptive response.  
0 / 1

(THE FIRST FIVE QUESTIONS RATE AT THE FIRST AND FINAL OBSERVATION PERIODS ONLY)

6. Parent demonstrated the correct procedure for delivering high-p request sequences.  
make request,  
wait for response  
record response  
provide reinforcement (or not, if no response/escape behavior/or maladaptive  
if maladaptive (stop session usual parent strategy to calm) resume  
0 / 1

(REMEMBER THE PARENT MUST USE THE CORRECT SEQUENCE OF HIGH-p AND LOW-p REQUESTS. RATE EACH ITEM BELOW SEPARATELY.)

7. 4/high-p 1/low-p  
0 / 1

8. 2/high-p 1/low-p  
0 / 1

9. 3/high-p 1/low-p  
0 / 1

10. 1/high-p 1/low-p  
0 / 1

8. Parent demonstrated the correct procedure for delivering low-p request.  
make request,  
wait 20s  
record response  
if maladaptive (usual parent strategy to calm)  
provide reinforcement (or not if no response or maladaptive)  
resume  
0 / 1

9. Parent demonstrated an understanding of the importance of immediate reinforcement for compliance to high-p and low-p requests (tests the priority of reinforcers periodically).  
0 / 1

10. Parent demonstrated the correct procedure for delivering reinforcement.  
immediately provided reinforcement for correct response (immediately following correct response) withheld reinforcement if incorrect response.  
0 / 1
Parent Training (Intervention 2)
Procedure Integrity Checklist

Parent Name_________________________________________  Date____________________

Complete the checklist after each home visit and on at least one third of the videotaped behavioral
momentum sessions. Have separate trained observer check procedural integrity.
Rating Scale  0 = Incorrect procedure  1 = Correct Procedure

1. Parent demonstrated an understanding of the ABC's of learned behavior (filled out form gave
eamples of their child's behavior). 0 / 1

2. Parent demonstrated an understanding of the effect that the environment has on his/her child's
behavior (instituted schedule change). 0 / 1

3. Parent demonstrated the importance of prioritizing reinforcement items and the concept of
possible satiation (utilized the reinforcement survey). 0 / 1

4. Parent demonstrated an understanding of the target behaviors.
defines what is and what is not a correct response to high-p requests
defines what is and what is not a correct response to low-p requests 0 / 1

5. Parent is able to differentiate escape behavior from maladaptive behavior and will
utilize existing strategies for inhibiting the escalation of a maladaptive response. 0 / 1

(THE FIRST FIVE QUESTIONS RATE AT THE FIRST AND FINAL OBSERVATION PERIODS
ONLY)

6. Parent demonstrated the correct procedure for delivering high-p request sequences.
make request,
wait for response
record response
provide reinforcement (or not, if no response/escape behavior/or maladaptive
if maladaptive (stop session usual parent strategy to calm) resume 0 / 1

(REMEMBER THE PARENT MUST USE THE CORRECT SEQUENCE OF HIGH-p AND
LOW-p REQUESTS)

3/high-p 1/low-p 0 / 1

8. Parent demonstrated the correct procedure for delivering low-p request.
make request,
wait 20s
record response
if maladaptive (usual parent strategy to calm)
provide reinforcement (or not if no response or maladaptive)
resume 0 / 1

9. Parent demonstrated an understanding of the importance of immediate reinforcement for
compliance to high-p and low-p requests (tests the priority of reinforcers periodically). 0 / 1

10. Parent demonstrated the correct procedure for delivering reinforcement.
immediately provided reinforcement for correct response (immediately following correct response)
withheld reinforcement if incorrect response 0 / 1
APPENDIX E

REINFORCEMENT SURVEY
Reinforcement Survey

This survey should be completed by parents and children together (if possible). Potential rewards can be selected from this list. Be sure to identify activities/things that could serve as daily and weekly rewards. Try to identify 5 daily and 5 weekly activities/things for each category.

Activities to be done at home:

Places (name) likes to go outside of home:

Activities (name) likes to do outside of home:

People child likes to spend time with:

Things child does not currently own but would like to have:

Child’s favorite food or drink:
APPENDIX F

REQUEST CHECKLIST
## Request Checklist

### Daily Living Skills

<table>
<thead>
<tr>
<th>Please indicate whether this request has a high-probability or low-probability for completion</th>
<th>H</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kitchen Requests</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drink from the cup</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suck from the straw</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eat with the spoon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cut it with the knife</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eat with the fork</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Go get a drink of water (from the tap without help)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please help me set the table</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please help me clear the table</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bathroom Requests</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Go pee pee in the potty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use the wash cloth to wash in the bathtub</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Go poo poo in the potty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Go to the bathroom before you get into bed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brush your teeth with your toothbrush and some toothpaste</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wash your face and hands (without help)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please throw that in the trash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry your self with the towel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Personal Care</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Let me wipe your nose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get a tissue and wipe your nose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unzip your coat/zip your coat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Button or unbutton your shirt/sweater</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Put on your pants please</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Put your shoes on (tie, slip on, or velcro, on correct feet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get dressed please</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get undressed please</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please put your toys away</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Please hang up your coat</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please put your clothes in the drawer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comb your hair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please cover your mouth when you sneeze</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please look both ways before crossing the street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don’t touch that it is HOT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is your home address</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is your telephone number</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

89
### Socialization

<table>
<thead>
<tr>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socialization</strong></td>
</tr>
<tr>
<td>Lets play &quot;Ring around the rosie&quot;</td>
</tr>
<tr>
<td>Lets sing &quot;Row, row, row, your boat&quot;</td>
</tr>
<tr>
<td>Lets roll the ball back and forth</td>
</tr>
<tr>
<td>Could I have that toy (whatever it is)</td>
</tr>
<tr>
<td>Would you share that toy with (whoever is there)</td>
</tr>
<tr>
<td>Would you say please then I will give you the (???)</td>
</tr>
<tr>
<td>Say hello to (whoever is there)</td>
</tr>
<tr>
<td><strong>Socialization Continued</strong></td>
</tr>
<tr>
<td>Say goodbye to (whoever is there)</td>
</tr>
<tr>
<td>Will you wait your turn</td>
</tr>
<tr>
<td>Will you put this puzzle together for me</td>
</tr>
<tr>
<td>Will you draw a picture for me</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td><strong>Don't Do Requests</strong></td>
</tr>
<tr>
<td>Don't hit me/ your sister/brother</td>
</tr>
<tr>
<td>Don't throw that</td>
</tr>
<tr>
<td>Don't scratch me/yourself</td>
</tr>
<tr>
<td>Don't kick me</td>
</tr>
<tr>
<td>Don't bite me/yourself</td>
</tr>
<tr>
<td>Don't bang your head</td>
</tr>
<tr>
<td>Don't scream</td>
</tr>
<tr>
<td>Don't hurt the dog/cat</td>
</tr>
<tr>
<td>Don't tear that</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>
APPENDIX G

PARTICIPANT SATISFACTION SURVEY
Participant Satisfaction Survey

The following questionnaire is part of the experimenter’s evaluation of the compliance-training package that you were taught to implement with your child. We encourage you to answer each question as honestly as possible so that we may accurately evaluate your current level of satisfaction and your perception of your child’s progress as a result of it. Your response will be important when the experimenter next conducts a compliance-training session with another child’s parent.

For each question below, please circle the response that best expresses how you honestly feel:

1. The demands placed upon me and my family during the intervention sessions (e.g., observations, interviews, parent training, and child compliance-training) of this study are/were:

<table>
<thead>
<tr>
<th>Very Unacceptable</th>
<th>Unacceptable</th>
<th>Slightly Unacceptable</th>
<th>Neutral</th>
<th>Slightly Acceptable</th>
<th>Acceptable</th>
<th>Very Acceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

2. Disregarding the observation, interviews and training components of the study, the demands placed on me and my family by the intervention we received are/were:

<table>
<thead>
<tr>
<th>Very Unacceptable</th>
<th>Unacceptable</th>
<th>Slightly Unacceptable</th>
<th>Neutral</th>
<th>Slightly Acceptable</th>
<th>Acceptable</th>
<th>Very Acceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

   Note: The rating scale for item #3 differs from all the other items. Please be sure to read the scale descriptions carefully prior to answering.

3. The length or duration of the compliance-training package that I received is/was:

<table>
<thead>
<tr>
<th>Much Too Short</th>
<th>Slightly Too Short</th>
<th>Appropriately Long</th>
<th>Slightly Too Long</th>
<th>Much Too Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

4. Would you recommend these intervention strategies to a friend or relative who had a child with a pervasive developmental disorder?

<table>
<thead>
<tr>
<th>Strongly Not Recommend</th>
<th>Not Recommend</th>
<th>Slightly Not Recommend</th>
<th>Neutral</th>
<th>Slightly Recommend</th>
<th>Recommend</th>
<th>Strongly Recommend</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

5. Overall, my level of satisfaction with the quality of the compliance-training package that my family is receiving/ has received is:

<table>
<thead>
<tr>
<th>Very Dissatisfied</th>
<th>Dissatisfied</th>
<th>Slightly Dissatisfied</th>
<th>Neutral</th>
<th>Slightly Satisfied</th>
<th>Satisfied</th>
<th>Very Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

6. The major problems that originally prompted me to begin treatment for my child are at this point:

<table>
<thead>
<tr>
<th>Much Worse</th>
<th>Slightly Worse</th>
<th>Worse</th>
<th>Unchanged</th>
<th>Slightly Improved</th>
<th>Improved</th>
<th>Much Improved</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>
7. My feelings at this point about my child’s progress are that I am:

<table>
<thead>
<tr>
<th>Very Dissatisfied</th>
<th>Dissatisfied</th>
<th>Slightly Dissatisfied</th>
<th>Neutral</th>
<th>Slightly Satisfied</th>
<th>Satisfied</th>
<th>Very Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

8. Prior to beginning the compliance-training package, my outlook for my child’s future was:

<table>
<thead>
<tr>
<th>Very Pessimistic</th>
<th>Pessimistic</th>
<th>Slightly Pessimistic</th>
<th>Neutral</th>
<th>Slightly Optimistic</th>
<th>Optimistic</th>
<th>Very Optimistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

9. At this point in time my outlook for my child’s future is:

<table>
<thead>
<tr>
<th>Very Pessimistic</th>
<th>Pessimistic</th>
<th>Slightly Pessimistic</th>
<th>Neutral</th>
<th>Slightly Optimistic</th>
<th>Optimistic</th>
<th>Very Optimistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

10. The thing I liked most about the compliance-training package was:

_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________

11. The thing that I liked least about the compliance-training package was:

_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________

12. Please provide us with some examples (if any) of your child’s increased compliance to difficult requests.

_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
_____________________________________________________________________________
APPENDIX H

ABC TRACKING SHEET
# ABC Tracking Sheet

Name of Parent ___________________________  Date __________

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Behavior</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Time __________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Time __________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Time __________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Time __________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Time __________</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX I

PARENT DATA ENTRY DIARIES
Parent Data Collection (Intervention 1)

5 Minute Session

Observer
Treatment Phase

Date ___/___/___
Tape#____
Ctr#____

(Circle your child’s response)

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H</strong></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>H</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>H</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H</strong></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>H</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>H</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>H</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
</tr>
<tr>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Two probability levels. H=High-p, L=Low-p, ++=Compliance 0=Non-Compliance P=Problem Behavior
## Appendix I (Sharing Intervention 2)
### Parent Data Collection
#### 5 Minute Session

<table>
<thead>
<tr>
<th>Observer</th>
<th>Date <em><strong>/</strong></em>/___</th>
<th>Treatment Phase</th>
<th>Tape# ______</th>
<th>Time: ______</th>
</tr>
</thead>
</table>

(Circle your child’s response)

<table>
<thead>
<tr>
<th></th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>*H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>*H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>*H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>*H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
<th>+</th>
</tr>
</thead>
<tbody>
<tr>
<td>*H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
<td>0</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
</tbody>
</table>

### Notes
- Two probability levels: H=High-p, L=Low-p, + = Compliance 0 = Non-Compliance P = Problem Behavior
APPENDIX J

DAILY SCHEDULES
### Daily Schedule Home

**Child’s Name**

**Date**

*Revise your child’s schedule according to his or her daily routine.

** Please rate your child’s most problematic time of day between (1) as the least difficult, to (6) as the most difficult.

### Daily Schedule (School/Camp)

<table>
<thead>
<tr>
<th>Before School</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Period</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; Period</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; Period</th>
<th>Lunch</th>
<th>4&lt;sup&gt;th&lt;/sup&gt; Period</th>
<th>5&lt;sup&gt;th&lt;/sup&gt; Period</th>
<th>6&lt;sup&gt;th&lt;/sup&gt; Period</th>
<th>After School</th>
<th>Bed time</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Most Difficult (6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Least Difficult (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Child’s Name**

**Date**

*Revise your student’s/camper’s schedule according to his or her daily routine.

** Please rate the most problematic time of day between (1) as the least difficult, to (6) as the most difficult.
APPENDIX K

TEACHER’S AGREEMENT TO COOPERATE
TEACHER AGREEMENT TO COOPERATE IN AN INVESTIGATIONAL STUDY

Fostering Behavioral Momentum in the Home: Behavioral Change Agents and the Implications for Families of Children with Autism

I, _______________________, agree to allow researchers from the Ohio State University’s School of Physical Activity and Educational Services (PAES) to observe and video tape my student ______________________ during classroom hours.

(Name of Subject)

The experimental (research) portion of this study: My student’s parents will be receiving training in behavioral intervention strategies in order to increase my student’s compliance to task demands. In order for my student to participate in this study he/she must have a diagnosis of Autism Spectrum Disorder.

The researchers will observe my student’s behavior before the intervention has been implemented and again two weeks and four weeks after the intervention period of the study has ended. I may be asked to make certain requests of my student in order to determine his/her ability to comply in certain demand situations.

1. **Purpose of the study:** Is to see whether parents of children with Autism Spectrum Disorder can learn to implement a behavioral intervention effectively, in order to increase their child’s compliance to task demands.

2. **Discomforts and risks reasonably to be expected:** None known for cooperating teachers. Forms with my name or other identifying information may be made available to the Institutional Review Board.

3. **Possible benefits for subjects/society:** The study will enable researchers to determine what effects this behavioral strategy has on children with Autism Spectrum Disorder (ASD) and compliance difficulties. This may well benefit other children with ASD.

4. **Anticipated duration of subject’s participation (including number of visits):** The study involves 3 separate observation periods of one hour (before, 2 weeks after, and 4 weeks after, the intervention period is completed), to be scheduled with me at my convenience if I have any questions I may call 614-247-6402.

My cooperation with this study is entirely voluntary. If I do cooperate, I may withdraw at any time. If I have any questions about the study procedures, I may contact Dr. Ralph Gardner at 614-292-3308.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Signed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(AM)

(PM)

(Cooperating Teacher)
APPENDIX L

PERMISSION TO OBSERVE AND VIDEO TAPE (SCHOOL & CAMP)
PERMISSION TO OBSERVE AND VIDEO-TAPE

Dear ____________________________,

(teacher's name)

My child ____________________________ and I are participating in a research study

(your child's name)

that is being conducted by the school of Physical Activity and Educational Services (PAES) at the Ohio State University.

I hereby request that you (or in your absence, others having contact with my child) assist the researchers at the Ohio State University allowing them to observe and video tape my child's behavior and performance in your classroom.

______________________________  ____________________________
Signature of Parent/Guardian/Caregiver  Date