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Functional Analysis of Abused/Neglected Children's Inappropriate Play

Jessica Bauer
Eastern Illinois University

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Functional Analysis of Abused/Neglected Children's
Inappropriate Play

(TITLE)

BY

Jessica Bauer

THESIS
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
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Functional Analysis of Abused/Neglected Children’s Inappropriate Play

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Abstract

This study investigated the possible governing mechanisms of inappropriate play behaviors of three developmentally normal children with a history of abuse/neglect. A functional analysis was performed using three conditions—contingent attention plus demands, contingent attention, and non-contingent attention. For one child, functional analysis revealed that inappropriate play behavior occurred more frequently in those conditions where contingent attention was present. Demands, at least when contingent attention was provided, did not appear to elicit or evoke inappropriate play behavior. For the other two children, functional analysis did not reveal any significant differences between conditions. The results of this study suggest that for some abused/neglected children environmental conditions may influence inappropriate play behavior.
Dedication

To Mitch, my best friend, who taught me the joys of love and humor.
Acknowledgements

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# Table of Contents

Title Page ...................................................... 1  
Abstract ....................................................... 2  
Dedication ...................................................... 3  
Acknowledgements .............................................. 4  
Introduction .................................................... 7  
Methods ....................................................... 19  
Results ........................................................ 33  
Discussion ..................................................... 39  
References ..................................................... 46  
Table 1 ........................................................ 52  
Table 2 ........................................................ 53  
Figure 1 ........................................................ 54  
Figure 2 ........................................................ 55  
Figure 3 ........................................................ 56  
Figure 4 ........................................................ 57  
Figure 5 ........................................................ 58  
Figure 6 ........................................................ 59  
Figure 7 ........................................................ 60  
Figure 8 ........................................................ 61  
Figure 9 ........................................................ 62  
Figure 10 ....................................................... 63
Functional Analysis of Abused/Neglected Children's Inappropriate Play

According to the National Center on Child Abuse Prevention Research, there are almost 3 million reported cases of child abuse and neglect nationwide every year (Tower, 1996). This is an estimate of 45 children in 1,000 that are being affected by child abuse and neglect. Of these abused children, approximately 45% are neglected, 30% are physically abused, 11% sexually abused, 2% emotionally abused and 9% experience some other form of maltreatment (Tower, 1996). It is not known how many of these children suffer from more than one of these forms of abuse.

Child abuse has a significant impact on children's behavior and psychological well being (Gil, 1991). Children who are sexually abused often experience problems such as fear or anxiety, anger or hostility, and inappropriate sexual behavior (Finkelhor, 1986). Those who are physically abused often experience tantrums, hyperactivity, withdrawal, opposition, compulsivity, aggression, and lack of impulse control (Tower, 1996). Children who are emotionally abused may show signs of anxiety, aggression and hostility, inappropriate social disturbance, fear or distrust, withdrawal, and self-destructive behaviors such as self-mutilation and depression (Garbarino, Guttmann, & Seeley, 1986). Children who are neglected are unique in the fact that attention is withheld from them. These children often display little emotion, violent behavior, and developmental delays (Polansky, Chalmers, Williams, & Buttenwieser, 1981).

Abused/Neglected Children's Behavior

Dodge, Bates, and Pettit (1990) conducted a longitudinal study of 309 four-year-olds looking at the effects of physical abuse on aggressive behavior. Children
who were physically abused early in life were included in the study. The
determination of abuse was made based on maternal reports. It was found that those
children physically abused early in life were later more aggressive in school toward
their peers than those who were not physically abused. However, two limitations of
this study were that the researchers relied on maternal reports and the researchers
observed the child's behavior only in a kindergarten setting. The maternal reports
may not have been accurate in terms of when and how often the abuse occurred. It is
also possible that the child's behavior could have been a problem in other settings not
observed in this study.

Wodarski, Kurtz, Gaudin, and Howing (1990) compared different types of
abused children to see if differences existed in behavioral problems displayed (e.g.
aggressive and delinquent behavior). They compared physically abused, neglected,
and non-maltreated children. Researchers found that physically abused and neglected
children displayed significantly more behavioral problems than non-maltreated
children did. Furthermore, those who were physically abused displayed more
behavioral problems than the neglected children did.

Friedrich, Urquiza, and Beilke (1986) studied 85 sexually abused children's
internalizing and externalizing behaviors. Examples of internalizing behaviors
include depression, anxiety and somatic concerns. Examples of externalizing
behaviors include aggression and hyperactivity. The researchers surveyed mothers'
perceptions of their children through the use of the Child Behavior Checklist. Results
showed that 36% of males and 39% of females of all ages evidenced significantly
elevated scores on the externalizing behavior rating scales. This means that they were
perceived by their mothers to display behaviors such as aggression, cruelty, delinquency, hyperactivity, and inappropriate sexual behaviors. Children between the ages of 6 and 12 were more likely to display externalizing behaviors whereas children 5 and younger displayed more internalizing behaviors, for example, being isolated and withdrawn from others. They also tended to exhibit signs of depression, which include a lack of motivation, lethargy, and a change in appetite. The aggressive and sexual problems were elevated more commonly then any of the other scales on the checklist for all age groups. The researchers concluded that abuse has a significant impact on children that can be directly seen in their behavior. However, the frequency, duration, and severity of abuse affected the significance of the behavioral problems shown. The more frequent the abuse, the longer the abuse took place (number of months), and the more severe the abuse, the greater likelihood of increased externalizing behavioral problems.

Oldershaw, Walters, and Hall (1986) observed abusive and non-abusive families to test the hypothesis that abused children’s misbehavior is often times a direct consequence of the parent’s attempts to control their child’s behavior. They had mother and child recreate home activities in an observational setting for a 40-minute period. They found that abusive mothers were more likely to use power assertive strategies such as threats, demands, and disapproval to control their child’s behavior. The non-abusive mothers were found to use more positive strategies such as reasoning, cooperation, and approval. The abused children were also more likely than the non-abused children to display higher levels of disobedience and non-compliance toward their mothers.
Trickett and Kuczynski (1986) found similar results when they studied abusive parents’ discipline strategies. They studied 20 abusive and 20 non-abusive families. The parents were asked to record their child’s misbehavior, their approach to the problem, and the child’s response. Abusive children were found to be more likely to misbehave in an aggressive manner and more likely to oppose their parent’s interventions when compared to children with non-abusive parents. Additionally, abusive parents were found to more frequently use some form of punishment.

According to Ryan (1995), children who have been or are currently being abused experience emotional damage and as a result, develop accommodating responses. Although many see the abusive child’s behavior to be the result of emotional damage, a possible environmental model to explain abused and neglected children’s problem behavior is the coercion model of dysfunctional families, especially abusive/neglectful families. This model states:

That parents, by being inattentive, erratic, and thereby non-contingent in responding to the child’s behavior, essentially—and inadvertently—teach the child that if he engages in aversive activity or responds in sufficiently aversive manner, he will succeed in terminating parental demands (Patterson & Reid, 1973, as cited in Youngblade & Belsky, 1990 p. 127).

Additionally, what may be happening in some of these families is that punishment and reinforcement are being delivered to the child in non-contingent ways. The aggressive behavior that the child is engaging in is more likely to increase in response to these unreliable and mismanaged schedules of punishment and reinforcement (Ammerman, 1990).
Contingencies of Reinforcement

From a behavioral perspective, contingencies of reinforcement are important to identify before attempting to decrease inappropriate behaviors such as aggression. In the developmentally disabled population, influential contingencies of behavior have been clearly identified. These include escape from demands (Blindert, Hartridge, & Gwadry, 1995; Mace, Browder, & Lin, 1987; Pace, Iwata, Cowdery, Andree, & McIntyre, 1993; Steege, Wacker, Cigrand, Berg, Novak, et al. 1990; and Vollmer, Marcus, & Ringdahl, 1995) and contingent attention (Derby, Fisher, & Piazza, 1996; Fisher, Ninness, Piazza, & Owen-DeSchryver, 1996; Fisher, O'Connor, & Kurtz, 2000; Hagopian, Fisher, & Legacy, 1994; Hanley, Piazza, & Fisher, 1997; and Vollmer, Iwata, Zarcone, Smith, & Mazaleski, 1993).

When demands are placed on a child, the inappropriate behaviors they display may be the result of their having previously escaped those demands when they engaged in that behavior. If the child is allowed to successfully escape demanding conditions, the inappropriate behavior has been reinforced and therefore is likely to be maintained.

Blindert and others (1995) tested the idea of decreasing self-injurious behavior in a 12-year-old boy where his behavior was maintained by escaping from demanding conditions. This determination was made through classroom observations of the boy. When he was given a direct command, he engaged in self-injurious behaviors. The demanding conditions occurred in a learning environment (school) and included such things as staff asking the boy a question, staff giving a command to the boy, and staff using the words “no” and “don’t” toward the boy. The researchers hypothesized that
less demanding conditions would evoke less escape behaviors and provide opportunities to reinforce non-abusive behavior. Researchers were able to successfully implement a treatment program where small demands were made and were gradually increased over time. Appropriate behavior (compliance) and responses that were correct were praised and rewarded. Self-injurious behavior was ignored. Non-compliance was prompted for a correct response. The self-injurious behavior was decreased to near zero levels.

In addition to self-injurious behaviors, stereotypic behaviors such as continuous sucking on a portion of a hand or finger or repetitive nail-biting have also been significantly decreased when the participant was given simple activities and was not allowed to escape or delay the demands from being given (Mace et al., 1987). The latter task was accomplished by ignoring stereotypic behaviors and giving simple demands to the child.

Still others have found that by putting a participant on a non-contingent escape schedule, the escape-maintained behavior (self-injurious behavior) decreased (Vollmer et al., 1995). The non-contingent escape schedule consisted of allowing the participant to “take a break” from the demand condition on a 30-second fixed-time schedule. This means that every 30 seconds, the participant was given a 20-second break and the self-injurious behavior did not affect when the breaks were taken. The fixed-time intervals increased 10 seconds each session contingent upon the low rate of self-injurious behavior until the intervals reached 1 minute. The intervals then increased in larger units up to 10 minutes. The result was an immediate and continual suppression of the behavior. This study found a unique way to decrease self-injurious
behaviors maintained by escape from demands. They further suggest that this may not have been the best method, but it was successful in this case.

The attention a person receives for a behavior may also maintain inappropriate behavior. Attention is often received immediately following a specific behavior (Martin & Pear, 1999). Contingent attention from others (e.g., attention that is contingent upon a behavior's occurrence) may include a caregiver's immediate response to the inappropriate behavior by redirection or attempts to punish. Even though the caregiver responds by redirection or attempts to punish, this may still be reinforcing the behavior because of the attention that the child receives (Iwata, Vollmer, & Zarcone, 1990). In cases where such "negative" attention is a reinforcer there is an increase in the rate of the behavior following attempts to redirect or punish. This is not to say that all negative attention by a caregiver is reinforcing. For some children, such negative attention may be aversive and "punishing." Attention is only reinforcing if it increases the rate of behavior.

Non-contingent attention has been found to be effective in reducing self-injurious behavior in developmentally disabled children whose behavior was attention-maintained (Derby et al., 1996; Fisher et al., 1996; Fisher et al., 2000; Hagopian, et al., 1994; Hanley et al., 1997; and Vollmer et al., 1993). It is effective because the child frequently gets attention without engaging in the self-injurious behavior, thus reducing the reinforcing power of the attention. Non-contingent attention is giving attention to a child immediately after the child displays any behavior, appropriate or inappropriate, for example on a fixed time schedule.
Fisher et al. (1996) studied destructive behavior in a developmentally disabled child. The determination that the behavior was attention-maintained was made through functional analysis. Functional analysis is the systematic manipulation of the environment in order to determine a causal relationship between behavior and its maintaining variable(s). The boy was exposed to three conditions—one where he received attention, one where he received demands, and one where he was alone. His destructive behavior occurred only in the attention condition. Furthermore, researchers found that contingent verbal reprimands such as “don’t hit me” produced higher rates of destructive behavior than contingent statements unrelated to the behavior observed such as “it’s a sunny day.” This suggests that some forms of attention are more reinforcing for behavior than are other types of attention. It is possible that attention that specifically addresses the inappropriate behavior or takes the form or tone of a reprimand is more reinforcing than the attention that is nonspecific or positive in tone. Treatment consisted of non-contingent attention and was provided on a 40-second fixed-time schedule. The destructive behavior in this case was extinguished.

Derby et al. (1996) found differences between providing contingent attention versus non-contingent attention to a developmentally disabled child with self-injurious behaviors. Researchers used a reversal design to evaluate the effect of non-contingent attention and attention contingent upon the inappropriate behaviors. When they provided contingent attention upon the occurrence of self-injurious behavior using verbal reprimands, the behavior increased. However, when they provided non-contingent attention using physical and verbal forms of attention, the behavior
decreased to near-zero levels. This study helped to show that non-contingent attention was effective versus the contingent attention.

Overall, the research in this area has shown that non-contingent attention has been effective in decreasing negative and inappropriate behavior among developmentally disabled children when the behavior has been found to be maintained by attention (Tucker, Sigafoos, & Bushell, 1998). However, no research has been done in this area among developmentally normal children who display behavioral problems.

**Environmental Enrichment**

Another possible factor affecting behavior is the physical environment. Several researchers have found that an enriched environment, defined as a physical setting that contains a large number of stimulating toys and objects, can affect behavior (Horner, 1980; Lindauer, DeLeon, & Fisher, 1999; Ringdahl, Vollmer, & Marcus, 1997; and Wilson, 2000). Horner (1980) studied the effects of an enriched environment on behavior among five profoundly retarded female participants. He measured adaptive behaviors such as leading, giving, hugging, and providing towards an adult, child, self, or object. Maladaptive behaviors included kicking, pulling, pushing, and hitting towards an adult, child, self, or object. Participants were exposed to an enriched environment and a non-enriched environment (all the toys and objects were removed) using an ABAB, reversal design. Environmental enrichment resulted in an increase in adaptive object-directed behaviors (e.g. manipulating toys and objects). All other behavior toward adult, child, and self was found to be insignificant. Researchers concluded that object-directed behavior and maladaptive
self-directed behavior were incompatible. That is, the presence of toys in the room allowed for the object-directed behavior to increase and the participants were “distracted” by the toys and did not engage in maladaptive self-directed behavior. A possible conclusion is that the physical environment shapes the type of behavior that occurs there.

Lindauer et al. (1999) found a significant result when enriching the environment for an adult woman with mental retardation, a mood disorder, and self-injurious behaviors. Twelve items (toys) were added to her environment. Results indicated that the woman’s self-injurious behaviors decreased and her mood improved significantly when she was exposed to this enriched environment. Researchers suggested that the self-injurious behaviors and the mood disorder co-occurred. By introducing the preferred stimuli, this increased the mood and thus decreased the self-injurious behaviors.

As previously stated, it is possible that escape and attention contingencies contribute to the behavioral problems of abused and neglected children and the physical environment may also play a role. For a child who has been neglected, becoming violent and aggressive may be their way of gaining attention from parents or caregivers. The neglected child may receive negative attention for this behavior. Behavioral problems in abused children may also be a way to avoid or escape demands that are placed upon them. Furthermore, the environment of abused or neglected children may be what is considered non-enriched by research standards and may result in increased inappropriate behaviors.
Functional Analysis

Treatment for a given behavior is often based on the topography or form of the behavior. For example, aggression may be treated with anger management and a behavior modification program. However, such an approach often times does not address what is maintaining the inappropriate behavior. Each human is unique; therefore, it would seem logical that a specific behavior with similar characteristics is not necessarily being governed by the same mechanisms in two different people. Before providing treatment for problem behaviors, it is important to know what governs or maintains those behaviors. Treatment can then be applied accordingly. One way to assess what governs the behavior is functional analysis.

Functional analysis is the systematic manipulation of environmental events in order to determine the possible maintaining variable or variables of a given behavior (Iwata, Vollmer, & Zarcone, 1990). A participant is exposed to various conditions, which contain or do not contain a possible governing mechanism. If the behavior were shown to occur at a significantly higher rate in one condition than in others, treatment could focus on the corresponding mechanism. Functional analysis allows many variables to be examined by themselves or in conjunction with each other. Of all the assessment methods, functional analysis is the only method that experimentally manipulates events in order to establish a causal relationship (Iwata et al., 1990). For example, suppose an abused/neglected child displayed aggressive and destructive behaviors but the contingencies that maintain these behaviors are unclear. Functional analysis may prove to be effective in trying to pinpoint the exact contingencies maintaining the behavior. Treatment can then address those contingencies.
Functional analyses are commonly used with the developmentally disabled population. Most research focuses on self-injurious behaviors (Iwata, Dorsey, Slifer, Bauman, & Richman, 1994; Iwata, Pace, Dorsey, Zarcone, et al., 1994) or on what reinforcer is most preferred (Lalli & Kates, 1998). Functional analyses have not been commonly employed with developmentally normal children who display behavioral problems. However, one study took a step in that direction.

Wilson (2000) studied three developmentally normal children with conduct problems and a history of abuse and neglect. This study was a single-case, reversal design, manipulating attention and the play environment. Some children were exposed to a contingent attention condition where attention was received immediately following inappropriate play behavior (e.g., destructive and disruptive play behaviors) on a fixed interval schedule of 15 seconds and a non-contingent attention condition where they received attention on a fixed time schedule of every 20 seconds. No significant differences were found between the contingent attention and the non-contingent attention conditions. However, as mentioned earlier for two children, significant results were found when the environment was impoverished. That is, inappropriate play behavior increased when exposed to an non-enriched environment. For one of the participants, the behavior decreased when exposed to an enriched environment. This study was important because it attempted to show how inappropriate play behaviors among developmentally normal children could be related to environmental conditions. This study utilized single case methodology and tried to do an analysis of non-directive play therapy that was based on an informal functional analysis (mother’s report).
In summary, more research is needed in the area of behavioral problems among abused/neglected children. Specifically, what is needed is a clearer picture of the contingencies that possibly maintain these behaviors. One idea is that contingent attention and escape are possible maintaining variables. If the contingencies can be more clearly identified and understood as they have been in developmentally disabled children, then treatment of behavioral problems in abused children may be more successful.

Purpose of the Study

The purpose of this study is to answer the following question: Can functional analysis with developmentally normal, but behavior-disordered children, demonstrate that environmental demands and attention govern children's behavior? Behaviors that were of focus in this study were inappropriate play behaviors such as destructive and disruptive behavior. This study utilized a single case design in a play therapy setting to assist in answering this question. A multi-element design was utilized.

Method

Participants

Three children, ages 4-6 (one female and two males) participated in this study. They were recruited from the Central Baptist Services and self-referrals. The following paragraphs contain a brief history and demographic information on each participant. The participants' real names have been changed in order to maintain confidentiality.

Abby, a six-year-old, was adopted at the age of four. At that time, her biological parents surrendered their rights to Abby and her four older siblings. Prior
to this, the Department of Child and Family Services investigated and found that Abby was subjected to physical and sexual abuse and neglect by her parents. She is currently diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), and takes 15 mg. of Ritalin three times per day. She lives with her adoptive parents and their seven-year-old son. Her adoptive mother reports Abby exhibits behavior problems at home including being oppositional, defiant, hyperactive, and, at times, physically aggressive. No behavior problems were reported in other settings. Abby has participated in a play therapy study almost one year prior to this one.

Danny, a four-year-old preschooler, is the older of two children. He currently lives with his biological mother and a younger sister (14 months). He has been previously diagnosed with childhood depression, Oppositional Defiant Disorder, and ADHD. He is on no medications at this time. His parents have had frequent marital problems and have separated several times. In the course of this investigation, Danny’s mother announced that they were getting a divorce. Danny’s mother reports he is resentful and jealous of his younger sister. She also reports that he is often angry, hostile, and aggressive. As a result of these behaviors, he has been dismissed from several day care facilities. Although Danny’s mother reports no abuse/neglect, she stated that Danny used to live with his two older half brothers who used to be “physical” with him, e.g. “throwing him around.” Danny has also seen his father be physically and verbally aggressive toward his mother. At the time of this study, he was not receiving any other forms of treatment.

Andy, a five-year-old preschooler, is the youngest of three children. Andy and his two older siblings have been in foster care for the last year and a half. They
have been living with the current foster family for one year and the foster parents are planning on adopting all three children. The Department of Children and Family Services became involved with Andy when it was discovered that the biological father was going to jail and could no longer care for the children. The biological mother was also found to be unfit to care for them. All the children have witnessed violence among adults in their lives and it is suspected that they also may have experienced physical and emotional abuse. Andy’s foster mother reports that his behavior is aggressive, destructive, and explosive. Primary problem settings include meal times, bed time, and going out into the community. The foster mother reports that ignoring and disciplining these behaviors cause them to increase. Other behaviors reported by the foster mother include enuresis, encopresis, impulsivity, self-injurious behaviors, and biting others. At the time of the study, Andy was attending a Head Start program and had some minor behavioral incidents there (e.g. hitting other children, throwing food). He was also seeing a master’s level therapist for family therapy independent of this study. One week after he joined the study, Andy was placed on a Ritalin trial of 5 mg., to be taken in the morning, at noon, and at 4:00pm. On the days that Andy came to the study, he did not take his 4 p.m. dose. This was done in order to make certain that the results of the study were not confounded by the Ritalin.

Therapist

This researcher served as the therapist for all participants in this study. The therapist was a second-year graduate student in the MA clinical psychology program at Eastern Illinois University. The therapist took several courses on therapeutic
strategies and interventions. The therapist was also working as an intern at a facility where she provided clinical services for children and families. Further experience has included three years working with dually diagnosed children (mentally retarded and an Axis I diagnosis) in a residential setting as well as working with domestic violence victims and their children.

Assessment

The parent(s) were asked to complete an informal interview with the therapist. This was a semi-structured interview (Appendix A) where the parent was asked about the following areas related to their child: behavioral difficulties, history, problem settings, medication, physical conditions, and the composition of the household. The informal functional assessment part of the interview consisted of listing antecedents and responses to problem behaviors.

The second component of the assessment process was the use of the Behavior Assessment System for Children (BASC), which is described more fully below. The parent or primary caregiver was asked to complete the Parent Rating Scale of the BASC. Since the participant pool contains 5-7 year olds, two different forms were used depending on the age of the child. The 2 ½-to-5-year-old form contains 131 items. The parent rated each item as to how frequently each behavior occurred by circling N(never) S(sometimes) O(often) or A(almost always). Examples of items include “has a short attention span”, “has trouble concentrating” and “complains of being teased.” The 6-to-11-year-old forms contain 138 items and employ the same rating procedure as the previous form. Examples of items include “is usually chosen
as a leader,” “is easily frustrated,” and “argues with parents.” These items are
summed into behavioral scales (Reynolds & Kamphaus, 1998).

The BASC has several scales that sum into problem composite scores. The
Externalizing Composite scales include hyperactivity, aggression, and conduct
problems. The Internalizing Composite scales include anxiety, depression, and
somatization. The School Problems Composite scales include attention problems and
learning problems. An Adaptive Skill Composite is obtained through the
adaptability, social skills, leadership, and study skills scales. Atypicality and
withdrawal are also assessed but are not part of a composite scale. All of the scores
can be summed into one score known as the Behavioral Systems Index. The T scores
were compared to general normative samples to determine significance. Significant
scores on the individual and composite scales are 60 and above. A score between 60
and 69 is in the At-Risk range and a score above 70 is clinically significant. The At­
Risk range may signify potential problems and the need to monitor behavior closely.
The clinically significant range denotes a high level of maladaptive behavior
(Reynolds & Kamphaus, 1998).

Validity is assessed with an “F” scale. Certain items are coded as being on the
“F” scale such that if they are rated with a specific score, then they count on the scale.
These items are statements of behavior that never not occur or never almost always
occur. If a parent indicates that this specific behavior never occurs or almost always
occurs, it is scored on the scale. Some examples would be “has troubles
concentrating” and “responds when spoken to.” A score of 0-2 is within an
“acceptable” range, 3-4 is within the “cautioned” range, and 5 or above are within an
"extreme cautioned" range. Scores in the caution ranges indicate that the person completing the questionnaire either had a tendency to exaggerate the child's symptoms, was a crying out for help, or signifies a troubled child.

Coefficient alpha reliabilities for the general norm samples are quite good. For example, at the 4-5 age level, the reliability scores for the composite scales are as follows: Externalizing Problems Scale, .89, Internalizing Problems Scale, .86, Adaptive Scale, .87, and the Behavioral Systems Index, .92. For the 6-7 age level, the reliability scores for the composite scales are as follows: Externalizing Problems Scale, .89, Internalizing Problems Scale, .87, Adaptive Scale, .93, and the Behavioral Systems Index, .74 (Reynolds & Kamphaus, 1998).

Parents were required to sign an informed consent (Appendix B) and to schedule sessions with the therapist. Each child was scheduled for two sessions per week for four weeks. Each session included 30 minutes of assessment with the child and therapist present.

Setting

Room. The study was conducted in the play therapy research laboratory at Eastern Illinois University, which contains a play therapy room and an observation room. The play therapy room contained one child-size table and two child-size chairs. A one-way mirror was on the east wall of the room behind which undergraduate student observers viewed the participants. The room was equipped with a sound system so that the observers could hear from the observation room.

Toys. Some of the toys used in this study were chosen based on Lebo's criteria for nondirective play therapy (Lebo, 1955). Toys used in this study included:
plastic army men, a Mickey Mouse bop bag, books, masks, a rice tray, Legos, and paper, markers, and crayons (for a complete list see Appendix C). Before the first play therapy session, parents were asked to rank order the toys according to what they felt their child most enjoyed. This list was used to determine which toys to exclude to stimulate the non-enriched environment. However, if the parents mentioned the gun, the bop bag, the sword and shield, or the army men on their list of top toys, at least two of these four toys were always kept in the playroom because they were toys thought to evoke aggressive theme play. The therapist then chose the next ranked toy to exclude. It is hypothesized that a non-enriched environment would evoke inappropriate play behavior. The top eight toys were then excluded from the playroom in order to create an environment most like one where the inappropriate behavior occurs. Previous research (Wilson, 2000) suggested that for some children an enriched environment tended to suppress destructive and disrupted play behavior.

The toys excluded from Abby’s play environment included the following: cellphone, plastic food, Legos, masks, puppet families, Hot Wheel cars, books, and a rubber snake. The toys excluded from Danny’s play environment included the following: a small camp set, Hot Wheel cars, play doh, plastic food, Legos, plastic army men and tanks, books, and the easel with paper, crayons, and paints. The toys excluded from Andy’s environment included the following: the dollhouse and the dolls, the plastic food, Hot Wheel cars, play doh, masks, cellphone, Teletubbie dolls, and the easel with paper, crayons, and paints.

The rest of the toys were placed evenly throughout the room. The Mickey Mouse bop bag and the inflated sword and shield were placed against the west wall,
opposite the one-way mirror. The dollhouse sat on the north wall in front of the table. The table and one chair sat on the north end of the room on which sat the rice tray. The therapist sat in one of the child-sized chairs, which was in the corner of the north side of the room next to the table.

Response Measurement

Behavioral Definitions. Inappropriate play behavior was defined as any behavior not acceptable for a child to engage in while supervised or unsupervised. In contrast, appropriate play behavior was defined as the use of objects in the manner for which they were intended, where one response leads to or proceeds another in the accomplishment of some project (Stahmer & Schreibman, 1992). In other words, it was play that used the objects in an appropriate and safe manner. Inappropriate play behaviors are destructive and disrupted play. Destructive play was defined as behavior that ruins the structure, organic existence, or condition of an object. This includes stomping, breaking, kicking, or mutilating objects (Fisher, Ninness, Piazza, & Owen-DeSchryver, 1996). Disrupted play was behavior that breaks down or interrupts play. This includes hoarding play materials, grabbing materials from the therapist, asking or demanding to leave, or throwing a tantrum (Plummer, Baer, & LeBlanc, 1977). If the child stopped playing for three consecutive seconds, this was also coded as disrupted play (See Appendix E, the training manual for more details of the definitions used in this study).

Play content was also measured. Aggression and sexual themes were measured in this study. Symbolic aggression was defined as play behavior symbolizing an offensive action or procedure. It includes the following behaviors:
the child using toys, writing implements, or body parts as weapons; thematically causing death, injury, or destruction, accompanied by any gestures and words or imitations of noises produced by the instrument; verbalization about the use, design, or action of weapons; any mention of destructive/aggressive items or themes in the course of play; the initiation and offer to begin or continue violent or aggressive theme play or other dramatic play activities that center around the themes of death, injury, killing, nuclear war, or similar topics (Sherburne, Utley, McConnell, & Gannon, 1988). Physical aggression was not included in this category. Symbolic sexual behavior was defined as play behavior that thematically symbolizes activity that involves sexual themes. This behavior includes verbalizations of sexual activity or stimulation of sexual activity with toys. Examples included making two dolls kiss or pulling off the doll’s clothes.

**Play Observation and Recording System.** The method of recording inappropriate play behavior and play content used in this study was the Play Observation and Recording System (PORS) found in Appendix D. The observers recorded the behavior behind a one-way mirror. Each 10-minute session was divided into 10-second intervals. The observers used a recorded audio tape to indicate each 10-second period. Each box contained the opportunity to record the following: destructive play (Dest), disrupted play (Disr), aggression (AG), sexual behavior (SX), attention (att), and demands (dem). Demands in this case referred to the therapist’s demands directed towards the child. Attention referred to the therapist providing attention to the child. The observer circled the particular behavior only once in the 10-second interval regardless of how frequently it occurred during the ten-second
interval. The percentage and total of the behaviors found in the 10-minute session were computed and recorded at the bottom of the page.

Observer Training

The observers were trained prior to the beginning of the study in order to improve agreement and decrease errors in measurement. Observers were four undergraduate psychology students who were blind to the study’s hypotheses and purpose. They were trained through the use of a videotape that contained a simulated play therapy session. Training was conducted over a two-week period consisting of one 2-hour session and two 1-hour sessions. The observers received instructions and definitions of the behaviors to be recorded. They watched the tapes and practiced recording the behaviors. Inter-rater reliability was calculated for each behavior. Training continued until each observer had reliability between 85% and 100% in each of the behavioral categories for two consecutive segments. For a complete training manual see Appendix E.

Inter-rater Reliability. Approximately 54% of the time, a second observer was present to independently code the child’s behavior. Reliability was calculated for each behavior code (destructive, disrupted, symbolic aggression and sexual play content, and total inappropriate play behavior) by calculating the agreement between the primary and the secondary observer. The agreement between the two observers was calculated by adding up all agreed upon occurrences or nonoccurrence of the behavior displayed. The inter-rater reliability is the number of agreements divided by the number of disagreements and multiplying by 100.
Inter-rater reliability was calculated for each behavior individually. Across all participants, reliability was 91% (range of 80% to 100%) for total inappropriate play, 98% (range of 95% to 100%) for destructive play, 98% (range of 92% to 100%) for disrupted play, 99% (range of 92% to 100%) for symbolic sexual play content, and 98% (range of 93% to 100%) for symbolic aggression play content. Reliability was also calculated for the therapist behaviors recorded. It was 97% (range of 92% to 100%) for attention and 99% (range of 94% to 100%) for demands.

The calculations above included those intervals in which no behavior occurred, thus possibly inflating the reliability estimates. Moreover, these figures do not correct or adjust for chance agreement. A Kappa test was then calculated in order to compensate for these factors. Kappa is a statistical agreement procedure used for data from multiple observers who are recording multiple behaviors. It assesses the amount of agreement beyond what is possible by chance. Kappa should be positive, indicating that observer agreement is more than that of chance (Oud & Sattler, 1984). Kappa was calculated for each day that reliability was taken for each participant. There were a total of three reliability checks per participant. The intervals where no behavior was observed or recorded were eliminated from the Kappa tests. The results of the Kappa can be found in Table 1. The average Kappa score was .64 with a range of .32 to .92. There were a few incidents where Kappa was not statistically significant. During these days, behavior occurred at such a low occurrence and therefore may have resulted in the insignificant results. For complete computation and analysis of each participant's Kappa tests, see Appendix F.
Experimental Conditions

Contingent attention: The therapist responded to the inappropriate play behavior (defined as destructive or disrupted play) on a fixed-interval schedule of 15 seconds. In a fixed interval schedule, the length of the interval is specific and in this case is 15 seconds. During the 15-second interval there was no attention given to the child’s behavior. Once the interval ended, the therapist attended to the next instance of inappropriate play. Following the contingent attention, the 15-second interval restarted. The therapist responded to the child’s inappropriate play behavior with language used in non-directive play therapy (Landreth, 1991). This included phrases like “you are enjoying throwing the rice onto the floor” or “you have decided to hit the baby against the wall.”

Demand and Contingent Attention Condition: The therapist presented demands to the child once every minute, therefore a total of nine demands were given to the child in this condition. There were three types of demands, which included the following: a demand to move to a different part of the playroom, a demand to put something away or move something, and a demand to play with something else. For the complete list of demands and the order in which they were given, see Appendix G. Contingent attention was also given during this condition exactly the same way as in the contingent attention condition, a fixed-interval schedule of 15 seconds. Statements of attention were also the same as above.

Non-contingent attention: The therapist responded to the child by giving attention to the child on a fixed-time schedule of 20-seconds (FT-20). In a fixed-time schedule, attention was given to the child every 20 seconds regardless of the behavior being
displayed. Statements were made to the child in this condition when he/she was
displaying appropriate and inappropriate behavior. Statements in which the child was
displaying appropriate play behavior included “you are happy playing with the
dollhouse”, “you figured out how to put the dolls on the chairs”, or “you have decided
to organize all the toys before you begin to play.” Statements where the child was
being inappropriate included those examples stated above in the contingent attention
and demands conditions.

Procedural Fidelity

In order to maintain and monitor procedural fidelity, the observers recorded
therapist attention. It allowed the therapist to check if the contingencies for
contingent attention and non-contingent attention were being maintained. These
procedural checks have been used in other studies (Lerman & Iwata, 1993). The
percentage of inappropriate play receiving attention (CA-P) and the percentage of
non-contingent attention (NCA) were calculated for each session and each individual
child. CA-P was calculated by counting the total number of intervals with attention
in the same or next interval following inappropriate play behavior divided by the total
number of occurrences of inappropriate play behavior. NCA was calculated by
counting the total number of occurrences of attention not following or not within an
interval of inappropriate play behavior divided by the total number of intervals of
attention. Additionally, the percentage of attention contingent on inappropriate play
(CA) was calculated by counting the total number of intervals with attention in the
same or next interval following inappropriate play behavior divided by the total
number of intervals of attention.
The results of these calculations can be found in Table 2, which shows the mean CA-P, CA and NCA across all phases of experimental conditions for each participant. For Abby, therapist attention was primarily contingent attention in the demand plus CA conditions and in the CA conditions. Therapist attention was primarily for appropriate play in the NCA condition. For Danny, the table shows that he received attention primarily contingent upon inappropriate behavior during the CA and demands plus CA conditions. During the NCA condition, about half of the therapist’s attention was given following inappropriate behavior and about half was preceded by appropriate behavior. For Andy, he received attention primarily contingent upon inappropriate play behavior during the CA and the demands plus CA conditions. During the NCA condition, he received attention about half of the time following appropriate play behavior and half the time for appropriate play.

Procedure

Each session was 30 minutes long, divided into three 10-minute experimental sessions. Each day, the order of conditions was counter-balanced. All sessions were videotaped and the therapist was present in all three conditions. At the beginning of each day of the sessions the therapist told the child “you can play with anything in the playroom in many of the ways that you would like to.” The child and therapist took a brief break after a 10-minute session was up. It is common in play therapy for a child to be given a break after 10 minutes (Phillips & Landreth, 1998). When the child returned, they were exposed to another condition of the study. This pattern continued for a total of 30 minutes of assessment and the child was exposed to all three experimental conditions in that one daily session. The child was brought in on two
different days for approximately four weeks; therefore the child was exposed to each experimental condition eight times.

The therapist wore different colored sweaters in order to facilitate discrimination of the experimental conditions. For the demands plus contingent attention condition, the therapist wore a green sweater. For the contingent attention condition, the therapist wore a purple sweater. And finally, for the non-contingent attention condition, the therapist wore a white shirt.

Results

Abby. Initial assessment of Abby’s behavior was conducted using the BASC, completed by her adoptive mother. The results suggest Abby’s mother tended to respond in a “negativistic” fashion. This suggests that she may have exaggerated Abby’s problematic behavior. However, it may also reflect an unusually high level of maladaptive behavior or the mother’s desire for help. Based on other assessment information, the high level of behavior reported is more than likely reflecting the mother’s desire for help and the unusually high level of maladaptive behavior. Utilizing general population norms, results showed that Abby had high amounts of externalizing behaviors. Externalizing behaviors on the BASC includes hyperactivity, aggression, and conduct problems. It is the disruptive nature of the child’s behavior that is measured here. Abby’s Externalizing Problem Composite score was 86. Her individual scores on the hyperactive scale, the aggression scale, and the conduct problem scale were 85, 82, and 75 respectively. These are all significantly elevated, suggesting problems in all three areas of behavior such as high amounts of activity, verbal and/or physical aggression, and disruptive behaviors
(Reynolds & Kamphaus, 1998). Her score on the depression scale was 74, indicating she may display depressive symptoms such as dysphoric mood, withdrawal from others, and self-reproach. Her score on the atypicality scale was also high (79). Her score on the attention problems scale was in the at-risk range (66) meaning she might display some attention problems that warrant some concern.

During the semi-structured interview with Abby’s mother, an informal functional assessment was done. She stated that Abby’s inappropriate behavior occurred primarily within the home. Her mother reported that problems “begin” when Abby begins to become hyperactive. Abby’s typical response to others during these times is one of opposition. Abby’s mother believes that this behavior is Abby’s attempt to control her entire environment.

The results for Abby are presented in Figure 1. The percentage of inappropriate play tended to be higher in the CA and the demands plus CA conditions compared to the NCA condition. The mean percentage of intervals of Abby’s total inappropriate play behavior was 17% (range of 2% to 75%) for the demand plus CA condition, 11% (range of 0% to 30%) for the CA condition, and 1% (range of 0% to 8%) for the NCA condition. Figures 2 and 3 show destructive and disrupted play behavior respectively. The percentages of destructive play behavior tended to be low but variable across conditions. The mean percentage of intervals of Abby’s destructive play was 8% (range of 0% to 58%) for the demand plus CA condition, 2% (range of 0% to 13%) for the CA condition, and 0% for the NCA condition. The mean percentages for disrupted play behavior also tended to be low, however, CA and demands plus CA conditions were higher than the NCA condition. The mean
percentage of intervals of Abby’s disrupted play behavior was 9% (range of 2% to 17%) for the demands plus CA condition, 9% (range of 0% to 25%) for the CA condition, and 1% (range of 0% to 8%) for the NCA condition.

Figures 4 and 5 show Abby’s sexual and aggression play content respectively. The total mean percentages of sexual play content was high in the first two sessions and then consistently low throughout the rest of the study. Abby’s typical behaviors were placing more than one family doll in the bed together and having the dolls kiss. The mean percentage of intervals of Abby’s sexual content was 1% (range of 0% to 3%) for the demand plus CA condition, 1% (range of 0% to 7%) for the CA condition, and 9% (range of 0% to 37%) for the NCA condition. Abby’s aggressive play content tended to be more frequent in the CA and the demands plus CA conditions. The mean percentage of intervals of Abby’s aggressive content was 11% (range of 0% to 83%) for the demands plus CA condition, 19% (range of 0% to 93%) for the CA condition, and 0% for the NCA condition.

Danny. Initial assessment of Danny’s behavior was conducted using the BASC, completed by his mother. Validity scores were in the acceptable range and indicate that this is a valid measure of this behavior. Utilizing general population norms, results showed that Danny had significantly high amounts of externalizing behaviors, which for his age, included hyperactivity and aggression. His Externalizing Problems Composite score was 71. His score on the hyperactive scale was 74, suggesting that he may display high amounts of excessive activity. His score on the aggression scale was in the at-risk range (64), meaning his aggressive tendencies warrant further consideration. Also of further consideration are
depressive symptoms, withdrawal, and attention problems as seen by his scores on those scales (64, 66, and 65 respectively). His significantly low scores on the adaptability and social skills scales (12 and 20 respectively) indicate that he may have some problems in social environments (Reynolds & Kamphaus, 1998).

During the semi-structured interview with Danny’s mother, an informal functional assessment was done. Danny’s mother stated that Danny was quick tempered, meaning he frequently becomes frustrated. She could not identify any possible antecedents to the behavior. She stated that Danny’s behavior seemed to increase when she attempted to discipline him or tried to ignore the behavior. She also was not sure as to what Danny is trying to accomplish when he displays the inappropriate behavior.

Danny’s results are depicted in Figure 6. Danny exhibited moderate and highly variable levels of total inappropriate play behavior across all conditions. The mean percentage of intervals of Danny’s total inappropriate play behavior was 22% (range of 0% to 42%) for the demand plus CA condition, 28% (range of 2% to 65%) for the CA condition, and 35% (range of 0% to 82%) for the NCA condition. Figures 7 and 8 show destructive and disrupted play behaviors respectively. Danny’s destructive play behavior was moderate and highly variable across all conditions. The mean percentage of intervals of Danny’s destructive play behavior was 19% (range of 2% to 42%) for the demand plus CA condition, 25% (range of 2% to 65%) for the CA condition, and 33% (range of 0% to 82%) for the NCA condition. Danny exhibited low levels of disrupted behavior across all conditions. The mean percentage of intervals of Danny’s disrupted play behavior was 5% (range of 0% to
13%) for the demand plus CA condition, 3% (range of 0% to 15%) for the CA condition, and 2% (range of 0% to 10%) for the NCA condition.

The content of play for Danny is shown in Figures 9 and 10, sexual and aggressive play content respectively. Danny’s sexual play content was low but variable across conditions. Examples of his play content included pulling off the Barbie dolls clothes and throwing them across the room. The mean percentage of intervals of Danny’s sexual play content was 2% (range of 0% to 15%) for the demand plus CA condition, .3% (range of 0% to 2%) for the CA condition, and 4% (range of 0% to 15%) for the NCA condition. Danny displayed moderate and highly variable levels of aggressive play content. Examples of this include shooting the dolls and puppets with the gun and hitting and kicking the bop bag. The mean percentage of intervals of his aggressive content was 17% (range of 0% to 100%) for the demand plus CA condition, 36% (range of 2% to 95%) for the CA condition, and 22% (range of 2% to 83%) for the NCA condition.

Andy. Initial assessment of Andy’s behavior was conducted using the BASC completed by his foster mother. The results suggest that Andy’s foster mother tended to respond in a “negativistic” fashion. This could be the result of the amount of maladaptive behavior, an exaggeration of problematic behavior, or a cry for help. Based on other assessment information, it is more than likely a cry for help by the foster mother or high levels of maladaptive behavior. Utilizing general population norms, results showed that Andy had significantly high amounts of externalizing behaviors. His Externalizing Problem Composite score was 73. His individual scores on the hyperactivity and aggression scales (82 and 83 respectively) indicate he is
likely to show high amounts of excessive activity and verbal or physical aggression. He also showed an inability to maintain his attention as indicated by his score on the attention problems scale (73) (Reynolds & Kamphaus, 1998).

During the semi-structured interview with Andy’s foster mother, an informal functional assessment was done. She stated that Andy’s behavior is very impulsive and explosive. She could not identify any antecedents, stating that Andy often is happy one minute and angry the next. The behavior increases and becomes progressively worse when she attempts to discipline him. She stated that she felt he is trying to communicate that he is angry when he engages in these inappropriate behaviors.

The results for Andy are seen in Figure 11. Andy displayed moderate and highly variable levels of total inappropriate play behavior across all conditions. The mean percentage of intervals of Andy’s total inappropriate play behavior was 35% (range of 0%-80%) for the demand plus CA condition, 28% (range of 2%-63%) for the CA condition, and 45% (range of 0%-73%) for the NCA condition. Figures 12 and 13 show destructive and disrupted play behavior respectively. Andy displayed moderate and highly variable amounts of destructive play behavior across all conditions. The mean percentage of intervals of Andy’s destructive play behavior was 28% (range of 0%-55%) for the demand plus CA condition, 28% (range of 0%-63%) for the CA condition, and 43% (range of 0%-65%) for the NCA condition. Andy displayed low but variable amounts of disrupted play behavior across all conditions. The mean percentage of intervals of Andy’s disrupted play behavior was
7% (range of 0%-35%) for the demand plus CA condition, .3% (range of 0%-2%) for the CA condition, and 3% (range of 0%-8%) for the NCA condition.

Figures 14 and 15 show Andy's sexual and aggression play content respectively. Andy generally displayed little play with a sexual theme. Examples of this content included pulling off the Barbie dolls clothes. The mean percentage of intervals of Andy's sexual content was 1% (range of 0%-7%) for the demand plus CA condition, 22% (range of 0%-87%) for the CA condition, and 6% (range of 0%-45%) for the NCA condition. In contrast to the low levels of sexual theme play, Andy evidenced moderate levels of aggressive theme play across all conditions. Examples of his content here included hitting and kicking the bop bag and playing with the toy gun. The mean percentage of intervals of Andy's aggressive play content was 18% (range of 0%-43%) for the demand plus CA condition, 19% (range of 0%-77%) for the CA condition, and 24% (range of 0%-67%) for the NCA condition.

Discussion

This study attempted to understand the governing mechanisms of children's problem behaviors in a play therapy setting. Functional analyses were performed to assess the inappropriate play behavior of three developmentally normal children with externalizing problems and a history of abuse/neglect (although one child's abuse history was not conclusively determined).

The majority of Abby's inappropriate play behaviors occurred in those conditions in which contingent attention was given. More specifically, Abby's disrupted play behavior occurred more frequently during those conditions in which attention was presented contingent on behavior (examples of Abby's disrupted play
behavior included looking into the mirror at the observers, looking around the room, and stopping her play to ask the therapist questions). Therefore, contingent attention seemed to serve as a reinforcer for her disrupted play behavior. There did not seem to be a difference in rate of behavior between the contingent attention condition and the demands plus contingent attention condition. In other words, the demands or escape from demands did not appear to effect the behavior when contingent attention was present.

For Danny and Andy the functional analysis failed to reveal any consistent pattern in behavior across conditions. This is not to say that contingent attention or demands necessarily are unrelated to their inappropriate play behaviors. It is possible that Danny and Andy may not have been able to distinguish between the experimental conditions and this would explain their highly variable results across conditions. One of the weaknesses of the multi-element design is that there may be interference between the conditions so that there is not a true picture of the effects of each in isolation (Harsen & Barlow, 1984). This could have been possible in this study given that the conditions changed every 10 minutes. However, a break was given between each “session” which would seem to mitigate against this. One way this could be explored or resolved in future studies would be to implement an ABAB, or reversal, design. Finally, it should be noted that unlike Abby, Danny and Andy had no previous experience in the playroom (see Wilson, 2000). Although it is not clear how this would explain her responding to the conditions differently than Danny and Andy, it could have possibly impacted the results.
Danny’s inappropriate play behavior was highly variable but present in all three conditions. He displayed similar amounts of destructive and disrupted play behaviors in all three conditions. His play content did not seem to co-vary with his destructive play behavior or experimental conditions. All of his play behaviors and play content started out at low levels and then rose after the first couple of sessions. This may be due to him becoming comfortable with the environment and testing the limits in the playroom.

Andy’s inappropriate play behavior was highly variable. There were two days when his behavior was very low across conditions. On one of these days, session 6, his advocate indicated to me that he was not feeling well. It is unclear as to what transpired on the day of session 3 that may explain his low levels of behavior. Nonetheless, the graph of total inappropriate play behavior does not reveal any obvious consistencies in his behavior across conditions. For destructive play behavior, there may have been a modest elevation in the NCA condition. However, there were moderately high levels across all conditions.

The mean percentages of intervals of aggressive play content seemed to directly co-vary with those mean percentages of intervals of inappropriate play behavior. That is, when destructive play was observed, so was aggressive play content. No clear conclusions can be made from this one case and no research has been done linking play behavior to play content. It does warrant further investigation.

The functional analysis for Abby demonstrated low amounts of inappropriate play behavior during the non-contingent attention condition and higher amounts of inappropriate play behaviors during those conditions in which contingent attention...
was present. Thus, contingent attention seemed to have served as a reinforcer for her inappropriate play behavior. This study replicates similar findings of contingent attention serving as a reinforcer with developmentally disabled children (Derby et al., 1996; Fisher et al., 1996; Fisher et al., 2000; Hagopian et al., 1994; Hanley et al., 1997; and Vollmer et al., 1993) and extends them to the inappropriate play behavior of a developmentally normal child.

For Abby, exposure to non-contingent attention lead to significantly lower levels of this behavior. Functional analyses of developmentally disabled children whose self-injurious behavior was attention-maintained, found that non-contingent attention successfully decreased the self-injurious behavior (Derby, et al., 1996; Fisher et al., 1996; Fisher et al., 2000; Hagopian et al., 1994; Hanley et al., 1997; and Vollmer et al, 1993). Thus, this study replicated and extended these findings to the play behavior of a developmentally normal child.

Overall, there was no co-variation with experimental conditions between the observed play behavior and the observed play content. However, some aspects of each individual participant’s play content should be mentioned. Abby showed moderate levels of sexual play content in the beginning of the study. She also displayed aggressive play content, although it was low during most sessions. Danny showed variable amounts of sexual play content towards the end of the study. He showed high amounts of aggressive play content throughout the study. Andy displayed sexual play content towards the end of the study. Andy displayed high and variable amounts of aggressive play content. The play behaviors that were observed in this study mirror the findings of similar inappropriate behaviors in children with a
history of abuse/neglect (Garbarino, et al., 1986; Tower, 1996). The destructive play behaviors and the aggressive play content seen in this study are similar to the reports of anger or hostility, aggression, and lack of impulse control measured in these studies.

There are several limitations of this study. First, it is possible that the experimental conditions changed too rapidly for the participants. Every 10 minutes they were exposed to a different condition, all of which contained some form of attention. It is possible that they were unable to distinguish between the experimental conditions. However, the therapist anticipated this problem and attempted to solve it wearing a different colored sweater in each condition. Functional analyses in other studies used 15-minute sessions and were able to test their participants several times a day across consecutive days (Iwata, Dorsey et al., 1994; Iwata, Pace et al., 1994). Perhaps if this study could have increased the amount of time exposed to each experimental condition or the amount of time spent in the playroom, results would have been different.

Second, the demands used in this study may not have been reflective of those demands the participant may have experienced outside the playroom. In the playroom the child was told to move toys or stop playing with certain toys. Thus, these demands were specific, simple, and reflective of the playroom environment. It is possible that these demands were not reflective of real life demands. Parents may place demands on the child that have nothing to do with toys such as coming to dinner or going to bed. These demands can be characterized as nonspecific and
complex, and as a result, may be more aversive. Thus, the demands in this study may be been insufficiently aversive to evoke escape behavior.

Moreover, the demand in this study was not repeated if the child did not comply. Thus the child was able to escape the demand without engaging in disrupted or destructive play behavior. A demand condition where escape was contingent upon only inappropriate play could possibly yield different results.

Another limitation of the study was the lack of a demands plus non-contingent attention condition. Only demands plus contingent attention and contingent attention conditions could be compared to one another in this study. This lack of a non-contingent attention and demand condition is important in that it precludes assessing if demands in the absence of contingent attention had an effect.

Lastly, this study only used one form of attention, that being contingent attention delivered in a positive manner. Parents may harshly comment on or verbally reprimand inappropriate behaviors. For example, Oldershaw et al. (1986) found that abusive mothers used demands and threats to try and control their child’s behavior. Such contingent “negative” attention may in some instances be reinforcing. Fisher et al. (1996) found that when giving attention, its impact depended on how it related to the inappropriate behavior. Simple contingent statements that had nothing to do with the behavior itself did not increase the rate of behavior (e.g., “It’s a sunny day”). However, when verbally reprimanding the behavior itself (e.g., “Don’t hit me”), the behavior increased. It is possible that the results of this study were affected by the fact that only one form of attention was given. Perhaps if other forms of attention were used (e.g., negative attention) there may have been a different effect.
This study has yielded several contributions. This study involved a systematic manipulation of a child's play environment in order to establish a causal relationship. Functional analyses have frequently been done with developmentally disabled children who display self-injurious behaviors (Iwata, Dorsey, et al., 1994; Iwata, Pace, et al., 1994; and Lalli & Kates, 1998) but few, if any functional analyses of developmentally normal children's play behavior have been conducted. Many psychologists from a psychodynamic approach believe that abused/neglected children's problem behaviors are the direct result of internal mechanisms (e.g., the emotional damage cited by Ryan, 1995). The results of this study suggest that some problem behaviors of abused/neglected children may be explained, at least in part, by environmental contingencies. Although a history of abuse and neglect may engender destructive and disrupted play, these behaviors may nonetheless still be responsive to other environmental conditions.

It is difficult to make broad conclusions about functional analyses of play behavior with developmentally normal children given that this study's limitations. However, the fact that environmental contingencies were implicated in one case should encourage future study. Play behavior is in great need of more empirical research. This study helps to understand what may be maintaining the inappropriate play behavior of some children.
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Table 1

Inter-observer agreement: Significance tests of Kappa
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*Note. * means significance for p<.05.
Table 2

Mean Percentages of Attention Provided to Participants Across Conditions
Table 2

**Mean Percentages of Attention Provided to Participants Across Conditions**

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**Note.** CA~P-percentage of contingent attention based on number of intervals of inappropriate play; NCA-percentage of non-contingent attention; CA-percentage of contingent attention based on number of intervals of attention.
Figure Caption

**Figure 1.** Percent of intervals with Abby's total inappropriate play behavior as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

Figure 2. Percent of intervals with Abby's destructive play behavior as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

Figure 3. Percent of intervals with Abby’s disrupted play behavior as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

Figure 4. Percent of intervals with Abby's sexual play content as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

**Figure 5.** Percent of intervals with Abby’s aggressive play content as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

Figure 6. Percent of intervals with Danny’s total inappropriate play behavior as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

Figure 7. Percent of intervals with Danny's destructive play behavior as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

Figure 8. Percent of intervals with Danny’s disrupted play behavior as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

Figure 9. Percent of intervals with Danny's sexual play content as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

Figure 10. Percent of intervals with Danny’s aggressive play content as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

**Figure 11.** Percent of intervals with Andy’s total inappropriate play behavior as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

**Figure 12.** Percent of intervals with Andy's destructive play behavior as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

**Figure 13.** Percent of intervals with Andy’s disrupted play behavior as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

Figure 14. Percent of intervals with Andy’s sexual play content as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Figure Caption

**Figure 15.** Percent of intervals with Andy’s aggressive play content as a function of experimental conditions (CA & Dem-contingent attention and demand condition; CA-contingent attention; NCA-non-contingent attention).
Appendix A

Therapeutic Interview
THERAPEUTIC INTAKE INTERVIEW

NAME OF CHILD ____________________  AGE ___  SEX M F
DATE OF INTERVIEW __________________  INTERVIEWER __________
RESPONDENT ________________________
ADDRESS __________________________
PHONE ____________________________

Description of Primary Behavior Difficulties
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

Important History
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

Primary Problem Settings
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

Medications
Physical Conditions

List names and ages of family members in household

Functional Assessment Interview
List antecedents and typical response of others to the primary behavioral difficulties.

Overall, what do you think the child is trying to communicate when the problem behavior occurs?

Procedures
1. Describe play therapy.
2. Administer Behavior Assessment Scale for Children (BASC)
3. Administer Problem Behavior Questionnaire
4. Schedule play therapy sessions.
Appendix B

Informed Consent
PARENTAL CONSENT FORM

Purpose: The purpose of this research project is to determine effective strategies for encouraging appropriate child behavior in a play therapy setting. As a participant in this project, your child will be evaluated using standard and experimental (described below) procedures. These procedures will potentially generate more useful information for parents and teachers.

Procedures: Your child’s behavior will be assessed using behavioral assessment and a traditional, appropriate standardized instrument known as the Behavior Assessment Scales for Children. In addition, your child will be observed during a play therapy session to determine the most effective strategies for encouraging appropriate behavior. These activities will include free play with a variety of toys and play therapy interventions provided by a graduate student therapist. Play therapy interventions will include non-directive, reflective and descriptive statements made by the therapist regarding the child’s play behavior. All the sessions will be videotaped.

Right to Privacy: All information collected may be used for training and research purposes. All materials and videotaped sessions will be maintained in a locked filing cabinet and no persons will have access to this information expect those individuals directly involved in your child’s evaluation or the research project. You will receive a summary of all information in a feedback session provided by the therapist when the project is complete. You may at any time request a copy of your child’s evaluation or the results of the study.

Participant’s Rights: Your child’s involvement in this project is voluntary. You have the right to withdraw from this project at any time. If you have any questions or concerns, or would like more information about our research and therapy program, please contact one of the graduate student therapists, Jessica Bauer, B.S. at 217-345-5364 Heather Sawyer, B. S. at 217-345-6594 or the university supervisor, Keith Wilson, PhD, at 217-581-6411.

I HAVE READ AND UNDERSTAND THE PURPOSE OF THE PROJECT, THE PROCEDURES INVOLVED, AND MY RIGHTS AS THE LEGAL GUARDIAN OF A PARTICIPANT. I AGREE TO ALLOW MY CHILD TO PARTICIPATE IN THIS PROJECT.

__________________________________________  ______________________
Signature                                      Date

__________________________________________
Child’s Full Name (Please Print)
Appendix C

Complete List of Toys
Complete List of Toys

1. plastic army men, tanks, and bunkers
2. rubber snake
3. small rubber rat
4. set of 6 plastic reptiles
5. small camp set (tent and animals)
6. Mickey Mouse bop bag
7. five Hot Wheels cars
8. cell phone
9. toy gun and holster
10. five picture books
11. two masks
12. two puppet families (Caucasian and African American)
13. doll house
14. doll furniture
15. doll house family figures
16. Barbie and Ken dolls, clothes and accessories (shoes, clothes, bag, two combs)
17. inflatable sword and shield
18. rice tray and rice
19. play doh
20. easel, paper, crayons, paints, pencils
21. Teletubbie dolls
22. plastic tea set
23. baby doll
24. baby bottles
25. baby monitors (2)
26. stuffed pig and stuffed teddy bear
27. plastic food
28. Legos
Appendix D

Play Observation and Recording System
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Appendix E

Observer Training Manual
OBSERVATION TRAINING

Brief Introduction to the Study

Play is one of many modes of expression for young children. Therefore, observing children while they play may be an opportunity for adults to assist children in exploring their own feelings, relationships, and self. This project will provide a formal evaluation of play therapy as a treatment for common childhood problems.

Parents will bring in their child to our psychology clinic for regularly scheduled visits. Each visit will include 3-10 minute sessions, during which the child plays in the presence of a therapist. One observer will be dedicated to data collection during each visit. From behind a one-way mirror, the observer will code child and therapist behavior during each 10-minute session. Observers will also be responsible for setting up/cleaning after the visits. Finally, observers will be responsible for scoring the observation and plotting/graphing these scores. During one-third of all visits, a second observer will code behavior simultaneously.

Ethical Considerations

It is absolutely paramount that research staff maintain confidentiality of any information obtained in this project. No specific discussion of children (including their names) or the experimental procedures will be allowed outside of the clinic.

Research/Practical Considerations

Please dress appropriately and interact with others, especially children and parents, in a professional manner. Observers must arrive 20 minutes prior to the scheduled appointments.

Observation Training Using the PORS

The steps of the training are listed below.

1. Behavioral Definitions + Narrative Observations
2. Introduction to Interval Recording
3. Introduction to the PORS
4. Trial 1: Reliability Observation
5. Assessment of Reliability
6. Trial 2: Reliability Observation
7. Trial 3: Reliability Observation
8. Trial 4: Reliability Observation
**Behavioral Definitions**

**Inappropriate Play:** Any behavior not acceptable for a child to engage in while supervised or unsupervised (Stahmer, & Schreibman, 1992).

**Examples:** Destructive Play, Disrupted Play

**Behavior: Destructive**

**Definition:** Destructive play is scored when the child stomps, kicks, breaks, bangs, or throws an object (Fisher, Ninness, Piazza, & Owen-DeSchryver, 1996, Hanley, Piazza, & Fisher, 1997).

**Example:**
- Pulling Barbie or Ken’s head off
- Tearing pages out of story book
- Stomping on the teapot until it breaks
- Writing on the wall with the crayons

**Questionable Instances:** Building a tower of blocks and knocking it down-not scored
- Punching the Mickey Mouse Bop Bag-not scored
- Kicking, stomping, throwing Bop Bag-scored
- Purposefully rubbing Play Doh into the carpet-scored
- Painting on table-scored

**Notes:**
Behavior: Disrupted

Definition: Behavior that causes the breakdown or interruption of play.

Elaboration: Disrupted play is scored when the child (a) hoards play materials, (b) grabs materials from the therapist, (c) leaves activities, or (d) tantrums (Plummer, Baer, & Le Blanc, 1977).

Example: Collecting toys in one small area, limiting visual or physical access to them by anyone else
- Pulling objects (toys) away from another
- Attempting to leave the observation room
- Throwing self on floor, kicking, crying, screaming, pouting
- Sits or stands for 3+ sec without toy play or other play
- Runs in circle or around room with no toy or scenario being acted out
- Asks questions 3+ times
- Turns from play or walks over to stand by therapist to ask a question
- Stops play and shouts a directive or asks:
  - stop watching me
  - why are you watching me
  - stop talking to me
  - where’s ______
  - I’m going to find ______
- Sits/stands next to therapist and talks about nightmares

Questionable Instances: Child crying because Barbie’s Fashion Doll Trunk fell on the child’s foot—not scored
- Child asks to use the restroom, but declines when therapist confirms the need—not scored
- Child approaches therapist to engage in play—not scored

Notes:
Behavior: **Symbolic Aggression**

**Definition:** Play behavior symbolizing an offensive action or procedure

**Elaboration:** Symbolic aggression is scored when (a) use of toys, writing implements, or body parts as weapons, thematically causing death, injury, or destruction accompanied by any gestures (pointing weapon at a peer or object) and words or imitations of noises produced by the instrument (b) any verbalization to self or others imitating the sound of exploding bombs or gunfire; or verbalizations about the use, design, or action of weapons (c) any mention of destructive/aggressive items or themes in the course of play (d) initiation and offers to begin or continue violent or aggressive theme play or other dramatic play activities that centered around the themes of death, injury, killing, nuclear war, or similar topics (e) physical aggression is not included in this measure (Sherburne, Utley, McConnell, & Gannon, 1988)

**Example:** Pointing with a finger and shouting “bang, you’re dead!”
- Building a block structure and bombing it with another object
- Stating it has been bombed or accompanying the action with an explosion sound
- Using action figures to stimulate a battle
- The child acting out the role of a Power Ranger in battle

**Questionable Instances:** Using a Teletubbie doll as a machine gun (scored)
- Hitting the therapist (not scored) playing with the Wild West Western Set and describing how the Native American figures will all die (scored) any time that they hit on the Bop Bag or use the sword and shield (scored) all noises when using the masks or the snake

Remember that it is the theme of play and not the aggressive acts themselves that are scored in this area. There will be some cases when it is aggression and destructive behavior together.
Play Content (Howe & Silvern, 1981)

Behavior: Symbolic Sexual Play

Definition: Play behavior symbolizing activity that related to or involves sexual themes

Elaboration: Symbolic sexual play is scored when (a) toys are used to stimulate sexual activity or (b) sexual activity is described

Example: Having Barbie and Ken take off their clothes and have sexual intercourse. While playing house, saying “the beds are for sex.”

Questionable instances: Pulling up a shirt, playing a doll to the chest, stimulating breast feeding (scored) undressing dolls and leaving them naked (scored) using sexual slang during play (scored) more than one person is put into the bed (scored) play related to sexuality: pregnancy, nursing, naming sex parts (scored)

Do NOT score relationship comments such as “this is my boyfriend” and when the dolls are dancing
1. Label these behaviors appropriately.
   - Child kicks the bop bag—DEST AG
   - Throws the pig at the doll house—DEST AG
   - Builds a tower with legos and then knocks it down—DEST AG
   - Is playing with the army toys—DEST AG
   - Colors on the table—DEST AG
   - Hits the bop bag lightly—DEST AG
   - Hisses the snake at the therapist—DEST AG
   - Throws the Play Doh at the window—DEST AG
   - Using Barbie as a victim of violence—DEST AG
   - Pointing the gun at the therapist—DEST AG
   - Draws a picture of a child being killed—DEST AG
   - One Teletubbie is beating up another and they are thrown—DEST AG
   - Trying to twist Barbie’s head off—DEST AG

2. What toys have aggressive themes and are automatically labeled as aggressive play if they are used by the child? (Hint: there are 4 that I am looking for)

3. Is hitting the therapist with a toy considered aggressive play? Why?

4. Is making noises when playing with the masks or the snake considered aggressive play?

5. Give your clear definition of destructive play behavior.

6. Give your clear definition of aggressive play behavior.

7. How are destructive and aggressive categories different.
Appendix F

Kappa Tests
Nominal Scale Agreement
Two observers with multiple (5) categories

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Observed Agreement $P_o = 0.6$
Chance Agreement $P_c = 0.36$

$Kappa = 0.375$

Significance Tests for Kappa

For $N > 100$

$z = 1.118033989$

$p < 0.26355257$ two-tail test
$p < 0.26355257$ one-tail test

For $N < 100$

$z = 1.095445115$

$p < 0.27332176$ two-tail test
$p < 0.27332176$ one-tail test
Nominal Scale Agreement
Two observers with multiple (5) categories

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Observed Agreement $P_o = 0.6$
Chance Agreement $P_c = 0.32$

$Kappa = 0.411764706$

Significance Tests for Kappa
For $N > 100$ $z = 1.34218873$
$p < 0.17953493$ two-tail test
$p < 0.17953493$ one-tail test
For $N < 100$ $z = 1.278019301$
$p < 0.20124275$ two-tail test
$p < 0.20124275$ one-tail test
Nominal Scale Agreement
Two observers with multiple (5) categories

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Observed Agreement $P_o = 0.94736842$
Chance Agreement $P_c = 0.33995075$
$Kappa = 0.920261133$

Significance Tests for Kappa
For $N > 100$ $z = 13.69126798$
$p < 0$  two-tail test
$p < 0$  one-tail test

For $N < 100$ $z = 29.04405119$
$p < 0$  two-tail test
$p < 0$  one-tail test
Nominal Scale Agreement
Two observers with multiple (5) categories

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Observed Agreement $Po = 0.625$
Chance Agreement $Pc = 0.23046875$
$Kappa = 0.512690355$

Significance Tests for Kappa
For $N > 100$, $z = 3.747332643$
- $p < 0.00017878$ two-tail test
- $p < 0.00017878$ one-tail test

For $N < 100$, $z = 3.259760983$
- $p < 0.00111518$ two-tail test
- $p < 0.00111518$ one-tail test
Nominal Scale Agreement
Two observers with multiple (5) categories

<table>
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<tr>
<th>Observer 2</th>
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Observed Agreement \( P_o = 0.87850467 \)
Chance Agreement \( P_c = 0.39689056 \)
Kappa = 0.798551774

Significance Tests for Kappa
For \( N > 100 \) \( z = 10.18257571 \)
- \( p < 0 \) two-tail test
- \( p < 0 \) one-tail test
For \( N < 100 \) \( z = 15.24892646 \)
- \( p < 0 \) two-tail test
- \( p < 0 \) one-tail test
Nominal Scale Agreement
Two observers with multiple (5) categories

<table>
<thead>
<tr>
<th>Observer 1</th>
<th>Observer 2</th>
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**Observed Agreement** $Po = 0.925$

**Chance Agreement** $Pc = 0.40988281$

**Kappa** $= 0.8729066$

**Significance Tests for Kappa**

For $N > 100$ $z = 13.24851026$

- $p < 0$ two-tail test
- $p < 0$ one-tail test

For $N < 100$ $z = 24.73799709$

- $p < 0$ two-tail test
- $p < 0$ one-tail test
Nominal Scale Agreement
Two observers with multiple (5) categories

Observer 1

<table>
<thead>
<tr>
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<th>Observer 2</th>
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Observed Agreement $P_o = 0.90361446$

Chance Agreement $P_c = 0.41544491$

Kappa $= 0.835112987$

Significance Tests for Kappa

For $N > 100$ $z = 12.76307384$
- $p < 0$ two-tail test
- $p < 0$ one-tail test

For $N < 100$ $z = 21.31214655$
- $p < 0$ two-tail test
- $p < 0$ one-tail test
Nominal Scale Agreement
Two observers with multiple (5) categories

<table>
<thead>
<tr>
<th>Observer 2</th>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
<th>Behavior 4</th>
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Observed Agreement $Po = \frac{56}{56} = 0.80357143$
Chance Agreement $Pc = \frac{5}{56} = 0.70918367$
Kappa $= 0.324561404$

Significance Tests for Kappa
For $N > 100$ $z = 1.555324145$
$p < 0.11986891$ two-tail test
$p < 0.11986891$ one-tail test
For $N < 100$ $z = 1.777849926$
$p < 0.07542841$ two-tail test
$p < 0.07542841$ one-tail test
### Nominal Scale Agreement

Two observers with multiple (5) categories

<table>
<thead>
<tr>
<th>Observer 1</th>
<th>Behavior 1</th>
<th>Behavior 2</th>
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**Observed Agreement** $Po = 0.8597561$

**Chance Agreement** $Pc = 0.48070345$

**Kappa** = 0.729934846

#### Significance Tests for Kappa

- For $N > 100$ $z = 9.715722899$
  - $p < 0$ two-tail test
  - $p < 0$ one-tail test

- For $N < 100$ $z = 13.97950622$
  - $p < 0$ two-tail test
  - $p < 0$ one-tail test
Appendix G

Complete List of Demands
Order of Demands Given

1. “Move over to the table and chairs” (if the child was there then “Move over to the dollhouse”, if no dollhouse was present then “Move over to the bop bag”)
2. “Put the tea set back in the box” (For Andy, there was no box so the demand was “Put the tea set back in the green tub.”)
3. “Stop playing with ______ and play with something else” (inserted was whatever the child was playing with at the time)
4. “Move over to the table and chairs” (same alternatives apply here)
5. “Put the bear and the pig on the table”
6. “Stop playing with ______ and play with something else”
7. “Move over to the table and chairs” (same alternatives apply here)
8. “Put the dolls in the dollhouse” (For Andy there was no dollhouse or dolls so the demand was “Put the army toys in the green tub”)
9. “Stop playing with ______ and play with something else”