ABSTRACT

Children diagnosed with autism often display inappropriate verbal utterances referred to in the literature as echolalia and repetitive speech. Echolalia and repetitive speech take two primary forms: frequently repeated indiscriminable nonsensical sounds (e.g., a child sits in a circle activity at school and verbalizes, "ooeeoo ooaaooee"); and non-contextual speech, frequently repeated words and phrases with no apparent relevance to the current environment or activity (e.g., a boy is sitting at his desk doing his math homework. He says, “Push the red button to go!” There was no material in his math homework nor did anyone talk to him about a button or getting ready to go, to make his statement contextual).

This study evaluated the usefulness of functional assessment as a method for determining the maintaining contingencies of non-contextual speech of four young children with autism. Functional assessment consists of three parts: interviews with significant others, direct observations of the target behavior(s), and analysis of the target behavior(s). The goal of functional assessment is to determine the maintaining contingencies for a specified target behavior. The maintaining contingencies are then used to develop an intervention to reduce or increase the target behavior. The intervention should thereby serve the same function as original target behavior.
maintaining contingencies for non-contextual speech occurred for each participant. The analysis of the maintaining contingencies occurred across alternating five-minute conditions: attention, escape, free play, and alone, with and without activities available. Results of the functional analysis suggested that non-contextual speech for all four children was maintained by positive reinforcement in the form of social attention. For two of the children, the functional analysis data suggested one or more additional maintaining contingencies including escape from demand for one participant and automatic reinforcement for another participant.

An intervention, based on the results from of the functional analysis, was developed and implemented with one of the children using differential reinforcement, in the form of social praise paired with token reinforcement. Results of this intervention, suggestions for future research, and implications for using functional analysis in the evaluation and treatment of echolalia and repetitive speech by children with autism are discussed.
Dedicated to my mother, father, and brother, for their infinite supply of love and support:

Eileen, Patrick, and Brendan
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### TABLE OF CONTENTS

Abstract ............................................................................................... ii

Dedication .......................................................................................... iv

Acknowledgments .................................................................................. v

Vita.................................................................................................... vii

List of Tables ......................................................................................... xi

List of Figures ........................................................................................ xii

Chapters:

1. Introduction ........................................................................................ 1
   1.1 Purpose of the Study ................................................................. 5
   1.2 Review of Literature ................................................................ 5
       1.2.1 Autism ............................................................................. 5
       1.2.2 Non-contextual Speech ..................................................... 7
       1.2.3 Functional Assessment .................................................. 12
       1.2.4 Summary .......................................................................... 18
   1.3 Research Questions ................................................................ 19

2. Method ............................................................................................. 20
   2.1 Participants .............................................................................. 20
       2.1.1 Gavin ............................................................................. 21
       2.1.2 James ............................................................................. 22
       2.1.3 Malcom ............................................................................ 24
       2.1.4 Steven ............................................................................. 25
   2.2 Settings ..................................................................................... 26
   2.3 Experimenter .......................................................................... 26
       2.3.1 Data Collectors ................................................................. 27
   2.4 Definition and Measurement of Dependent Variable ................. 27
       2.4.1 Definition .......................................................................... 27
       2.4.2 Measurement and Recording ....................................... 29
   2.5 Procedures to Ensure Believability of Data and Treatment Integrity .................................................................................. 30
       2.5.1 Interobserver Agreement ............................................... 30

viii
<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Demographic Data For Participants</td>
<td>23</td>
</tr>
<tr>
<td>2.2 Contingency Assessed by Each Functional Analysis Condition</td>
<td>34</td>
</tr>
<tr>
<td>2.3 Participation per Condition for Each Child</td>
<td>35</td>
</tr>
<tr>
<td>3.1 Social Validity Results</td>
<td>64</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Functional Analysis – Gavin</td>
<td>48</td>
</tr>
<tr>
<td>3.2 Functional Analysis – James</td>
<td>52</td>
</tr>
<tr>
<td>3.3 Functional Analysis – Malcom</td>
<td>56</td>
</tr>
<tr>
<td>3.4 Functional Analysis – Steven</td>
<td>60</td>
</tr>
<tr>
<td>3.5 Baseline and Intervention – Steven</td>
<td>62</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

Autism is a severe developmental disorder involving impaired communication, social and emotional functioning. The Individuals with Disabilities Education Act (1997) defines autism as

a developmental disability affecting verbal and nonverbal communication and social interaction, generally evident before age 3, that affects a child’s performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. The term does not apply if a child’s educational performance is adversely affected primarily because the child has a serious emotional disturbance. (IDEA, 1997)

Children diagnosed with autism often display sensory deficits, affect isolation, self-stimulation, echolalic and psychotic speech, challenging behavior (e.g., protests, self-injurious behaviors), and skill deficiencies. Many children with autism display echolalic and repetitive speech that can be described as verbal behavior that is inappropriate. These inappropriate verbal utterances can consist in two forms, indiscriminable nonsensical sounds and verbal utterances involving non-contextual, intelligible statements or statements repeated seemingly without purpose or relevance to the ongoing environment. For example, a mother says, “Get the milk out,” and her son says, “Lilo and Stitch brought to you by Wendy’s” as he gets out the milk. In the example above, had the phrase been repeated while a ‘Lilo and Stitch’ commercial was on
television, it would be considered contextual speech. However, as this phrase was not related to the ongoing activities, it is considered repetitive, abnormal or non-contextual.

Non-contextual speech can have detrimental effects on the daily lives of children with autism and their families. The simplest of conversations, perhaps determining the color crayon the child wants to use, can be difficult if the child repeats a parent’s or peer’s question in an echolalic fashion or if the child frequently repeats phrases or words unrelated to the context. These conversations can sometimes be long in duration and result in lack of communicative satisfaction by the parent or peer. When these conversations are inconclusive, parents and siblings can become frustrated. On many occasions the same child cannot be left to play independently because he will repeat statements throughout his play. New forms of words, perhaps even new ideas, are inhibited because of the frequency of these repeated phrases.

The cause of non-contextual speech has yet to be determined. The most commonly cited function is self-reinforcement. Lovaas, Varni, Koegel, and Lorsch (1977) studied a form of non-contextual speech known as delayed echolalia and concluded that the behavior was associated with intrinsic reinforcement or automatic reinforcement. They suggested that continued high rates of echolalia during extinction conditions pointed to the intrinsic reinforcement. In other words, the behavior produced its own reinforcement. However, non-contextual speech could serve a variety of functions including escape, attention, or communication. For example, a peer asks Ed, “What’s your name?” and he responds with “In other news, the hurricane damage is estimated at $160,000.” This may have been an incorrect response to the question but more likely it was a repetition of a statement heard on a prior news program functioning
as an escape behavior. Later that day, Ed’s mother is talking on the phone, leaving Ed alone. Ed emits a string of phrases he heard at school the previous day. Ed’s mother gets off the phone, goes over to Ed, pats him on the head and says, “Hi Ed, what are you talking about?” In this situation, the behavior served an attention-seeking function for Ed because he gained his mother’s attention by emitting the behavior.

Assessing situations where behaviors occur, analyzing the data to determine the function of the behaviors, and determining interventions relevant to those functions is known as functional assessment. Functional assessment of behavior assumes the following (Chandler & Dahlquest, 2002):

1. Challenging behavior and appropriate behavior are supported by the current environment.
2. Challenging behavior serves a function for the child such as attention-seeking or task avoidance.
3. Challenging behavior can be changed using positive interventions that address the function of behavior.

Functional assessment should be a team-based process. The goal of functional assessment is to change challenging behavior using a team-based approach. The notion of determining the function of behaviors and implementing relevant interventions to decrease those behaviors has been used to assess destructive behaviors, stereotypic behaviors and verbal behaviors.

The functional assessment process involves three steps. First, interviews of significant others, such as parents and teachers, are conducted to determine the target behavior(s), when the behavior occurs, and when the behavior does not occur. Direct
observations follow the interviews. Environments in which the target behavior has been observed are identified from the information gathered during the functional assessment interviews. Once these environments have been observed, the third step of functional assessment known as functional analysis is conducted. This step consists of analyzing the behavior under different contingencies such as positive or negative reinforcement.

Carr and Durand (1985) used the third step of the functional assessment process, functional analysis, to identify the functions of problem behaviors by assessing situations in which problem behaviors were most likely to occur and then analyzing the data to determine replacement behaviors relevant to the function of the problem behaviors. These problem behaviors, including self-injury, aggression, and tantrums, affected the daily functioning of the child.

Using functional analysis, Ross (2002) assessed inappropriate speech patterns termed as repetitive phrases, response omissions and contextually inappropriate or perseverative questions. Attention and escape were found to be the maintaining contingencies for two children, 9 and 14 years of age, with autism. This study used functional communication training to train an alternative behavior that serves an equivocating function as the problem behavior. Ross used functional communication training to reduce levels of inappropriate speech patterns and increase appropriate patterns.

Limited published research is available that assesses the function of non-contextual speech in young children with autism. This study used functional assessment procedure to analyze the non-contextual speech of children with autism ages 3-7.
1.1 Purpose of the Study

This study used and evaluated the use of functional assessment to determine the maintaining contingencies for non-contextual speech in children with autism. This study also evaluated the effectiveness of an intervention developed from the results of the functional assessment.

This study consisted of two parts. The first part used functional assessment procedures to identify the maintaining contingencies of non-contextual speech by four children with autism. Results from the functional assessment were then used to determine the maintaining contingency of non-contextual speech and if, for some children, non-contextual speech had multiple maintaining contingencies.

One of the children participated in a second part of the study, in which an intervention was developed to reduce the occurrences and/or duration of the non-contextual speech. This intervention was developed based on the specific functions indicated by the functional assessment.

1.2 Review of the Literature

This review of the literature examines research regarding autism, repetitive language, and functional assessment to provide a framework for understanding the benefits of reducing non-contextual speech by children with autism.

1.2.1 Autism

Autism and autism spectrum disorders are pervasive developmental disorders that may affect as many as 3 to 6 per 1000 children (Centers for Disease Control and Prevention, 2003). Autism spectrum disorders include Pervasive Developmental
Disorder, Fragile X Syndrome, and Asperger Syndrome. According to the Centers for Disease Control and Prevention, there is no known cure for autism spectrum disorders.

Autism is marked by a qualitative impairment in social interaction, qualitative impairment in communication, and restricted, repetitive, and stereotyped patterns of behavior, interests, and activities. The qualitative impairment in communication can take four forms: (a) delay in, or total lack of, the development of spoken language (not accompanied by an attempt to compensate through alternative modes of communication such as gesture or mime), in individuals with adequate speech; (b) marked impairment in the ability to initiate or sustain a conversation with others; (c) stereotyped and repetitive use of language or idiosyncratic language; and (d) lack of varied, spontaneous make-believe play or social imitative play appropriate to developmental level (American Psychiatric Association, 2000).

A delay in spoken language development is seen in almost all children with autism (Gillberg & Coleman, 2000). Language development may in many cases occur typically before the age of 2 years, speaking 2-6 words both meaningfully and consistently. Language regression often occurs around age 2. The result is an expressive language delay. Additionally, receptive language is also delayed.

Certain abnormalities are seen in the language that the children do develop. These abnormalities include immediate and/or delayed echolalia, inaccuracies in pronoun and preposition usage, and literal semantic interpretations. Repetitive speech is also seen in the children’s speech as it develops (Gillberg & Coleman, 2000).
1.2.2 *Non-contextual Speech*

Abnormal, bizarre, repetitive, or echolalic speech can be termed non-contextual speech. A relatively small body of research regarding treatment of non-contextual speech in children with autism is available. Goren, Romanczyk, and Harris (1977) assessed the effects of antecedent and consequence events for four children who exhibited immediate echolalia that interfered with their functional speech. Three conditions were assessed for the antecedent analysis: verbal imitation, verbal response to questions, and nonverbal response to instructions. The amount of echolalia for each child was similar throughout all three sessions. During the nonverbal response to instructions, an increase in appropriate responses and a decrease in echolalic responses was noted but this was attributed to the lack of verbal responding required in response to the nonverbal instructions.

During the consequence analysis, reinforcement of echolalia, punishment of echolalia, and concurrent punishment of echolalia and differential reinforcement of appropriate verbal behavior were assessed. The contingencies had varied affects on the participants with conclusions. Only one participant responded positively to the consequential approach. This study expanded on previous studies by measuring not only the frequency of the echolalic response but also the frequency of the appropriate responses.

One year later, Schreibman and Carr (1978) attempted to increase the frequency of the appropriate responses. Schreibman and Carr used a multiple baseline design across two subjects aged 7 and 15 years. The response, “I don’t know” was trained for questions previously observed to illicit echolalic responses such as “how,” “why,” and “who.”
Training sessions continued until 14/15 responses were correct. Probe sessions then took place to assess generalization to “where,” “why,” and “when.” For both trained and generalized stimuli, echolalic responses were replaced, with the learned response, “I don’t know.” Maintenance probes were done a month later resulting in data consistent with the end of treatment. This study extended the body of research to include both training and generalization of replacement behaviors for echolalic behaviors, although the function of the echolalic behavior was not evaluated.

Prizant and Rydell (1984) studied the delayed echolalic responses of three pre-school boys with autism. Two, 30-minute, sessions of interactions with a teacher or a language clinician were videotaped. These tapes were transcribed and then analyzed the form of the speech based on child’s interactiveness, comprehension, and linguistic context (i.e. the child’s response were related to the question the researcher asked). The verbalizations were also grouped into the following categories: immediate echolalia, delayed echolalia, creative utterances, and unclassified utterances. From these analyses, 14 forms of delayed echolalia were observed including non-focused, situation association, rehearsal, and self-directed. This study was among the first to describe multiple forms of delayed echolalia. The researchers also described echolalia as having communicative purposes. Limitations of the study included the limited number of participants and their advanced language abilities.

While Prizant and Rydell (1984) identified forms of echolalia, other researchers assessed different treatments to reduce the occurrence of delayed echolalia. Like Schreibman and Carr (1978), McMorrow and Foxx (1986) assessed the use of replacement behaviors when treating echolalia. McMorrow and Foxx (1986) addressed
replacing echolalia with correct responses to questions for a 21-year-old male with mental retardation. In the first of three experiments, the participant was taught responses to thirty questions using point-say cue cards. Responses were shown on cue cards. The experimenter would prompt the participant to point to the cue card and say the response. At the start of the experiment the participant echoed between 70% and 100% of the response time. At the end of the experiment, the participant answered all questions with 100% accuracy with no echolalic responses.

During the second experiment, the participant was taught to use a model of a peer to determine the correct, non-echolalic, answer to the questions. The peer was asked a question and responded accurately. Immediately following the peer’s response, the experimenter asked the participant the same question. The results of the second experiment were consistent with the first experiment. The participant accurately responded to 80%-100% of the questions.

The third experiment consisted of teaching the participant to imitate responses from a peer to increase his correct responding and decrease occurrences of echolalia. During this experiment, the participant was taught to observe a peer answering 10 questions before he was given the opportunity to respond to the same questions. The participant again reached an accuracy rate of 80%-100% with only one episode of echolalic response during the session. Generalization and maintenance of the response class was not noted in the study. The results generated from this work indicated that training replacement responses could reduce echolalic responses.

Pursuing the idea of replacing echolalia with appropriate responses, McMorrow, Foxx, Faw, and Bittle (1987) assessed the effectiveness of cues-pause-point language
training (participants look at a picture cue, wait, and then point and say the name of the object in the picture) on the presence of echolalia in response to question sets. Two females, 14 and 20 years, participated in the experimenter. Both participants’ language contained immediate echolalic responses. Prior to each experiment the subjects were taught to verbally label picture stimuli. During the experiment, each participant was taught to look at a picture, remain quiet, point to the picture, and then verbally identify the picture. Two sets of stimuli were used. One set was used as training stimuli during the training phases of the experiment; the other set was used for generalization probes throughout the experiment. Echolalia was replaced by correct responses in both participants. Only one participant was able to generalize to the untrained set.

During the second experiment question/response pairs were used as opposed to picture stimuli. A multiple baseline approach was used to assess the generalization to untrained stimuli within and between settings and the effects of sequential increasing the complexity of the treatment environments. During the training, echolalia was replaced by correct responses for each participant. Like the first experiment, one participant was able to generalize the skill to the more complex environments, however the other participant was not able to generalize the skill. This study indicates further research with regard to the generalization of replacement behaviors.

Roberts (1989) assessed receptive language in relation to the occurrence of echolalia. She hypothesized that there is an inverse relationship between receptive language skills and the occurrence of echolalia in the verbal repertoire of a child with autism. Immediate echolalia was defined as “recognizable imitation occurring within two utterances of the model.” Ten children ranging in age from 4 to 17 years of age
participated in the study, and their receptive communication skills were assessed. Each participant was given a language assessment test and assigned a receptive communication age. Standard language sampling procedures were then used to stimulate utterance and expressive language. The occurrence of echolalia was scored for each sampling. A correlation was seen between high occurrences of echolalia and a lower receptive communication age. The results indicate a correlation between deficits in the receptive language and the occurrence of echolalia in a child's behavioral repertoire. The results support the emphasis of receptive language training in early intervention programs.

Some studies have tried to incorporate echolalic responses into teaching strategies. Charlop (1983) designed two experiments to assess the effects of echolalia on the acquisition and generalization of receptive labeling tasks. Baseline consisted of a trial and error procedure to assess the children's ability to acquire the receptive labeling. None of the 5 participants reached the 90% criterion during the first 20 sessions. Each child achieved the 90% criterion during the echo relevant word condition. During this condition, the experimenter modeled the target word but did not present the two stimuli from which to choose until after the child had echoed the word. Once the child had echoed the word, the experimenter presented two stimuli and the child chose the corresponding stimuli. The success of all the participants suggested that incorporating relevant echolalia into the task facilitated learning.

The second experiment assessed the effects on generalization of echolalia when it has become part of the response class. Six children with autism, three echolalic and three mute, participated in the study. A single-subject design replicated across subjects was used. Pretests were given to ensure the child could not receptively identify the stimuli.
The same echo procedure from the first experiment was administered with a reversal to
the no echo condition or trial and error. The data suggested for the echolalic children that
the echo condition was more effective with regard to promoting generalization than the
non-echo condition.

Using an ABAC design (A being baseline and B and C being training sessions)
experimenters assessed the use of an echolalic response on receptive identification of
Chinese letters. Fifty trials of a receptive naming task were used as baseline. Feedback
was given for both correct and incorrect answers. During the first training, experimenters
first said the name of the letter until the child repeated or echoed the name. Then a
receptive task as seen in baseline was administered. The second training phase was
administered in this same way however no feedback was given during the receptive task.
Scores on the receptive task increased from 50% to 100% during the first training
with feedback and remained high for the second training (90%) with no feedback. Leung
and Wu concluded that echolalia contributed to the acquisition and maintenance of
receptive naming of Chinese letters.

1.2.3 Functional Assessment

Functional assessment is an assessment methodology consisting of three parts:
interviews, direct observations, and functional analysis. Interviews and direct
observations are used to identify and gather information about specific target behaviors.
Information gathered during these parts includes the topography of the behaviors,
antecedents and consequences of the behaviors, as well as identification of times the
behavior does not occur. Functional analysis, the third component of functional
assessment, consists of analyses of a defined target behavior under different contingencies, such as escape and automatic reinforcement. Results from the analysis may suggest one or more maintaining contingencies for the target behavior (Chandler & Dahlquest, 2001).

Neef and Iwata (1994) as well as Hanley, Iwata, and McCord (2003) have looked at a collection of functional analysis research. In 1994, Neef and Iwata found that the main focus of research has been “What types of assessment methodologies provide reliable and valid data about behavioral function, and how can they be adapted for use in a particular situation?” and “How might the results of such assessments improve the design and selection of treatment procedures?” Hanley, Iwata, and McCord (2003), noted the majority of functional analysis literature examines self-injurious behavior and aggression. The following discussion reviews functional analysis research using standard approaches, such as Carr and Durand (1985), and modified approaches, such as Ross (2000).

Carr and Durand (1985) used functional analysis to assess the antecedent events for children exhibiting problem behavior. This study assessed only the antecedents of the behaviors, and developed an effective antecedent-based intervention. This approach used a functional analysis procedure to identify the antecedent events for four children who exhibited problem behaviors including, aggression, tantrums, and self-injury. Children who displayed at least one problem behavior per hour in the classroom and had the capacity for at least one-word utterances were chosen for the 2-part study. Task difficulty and lack of attention were found to be the highest correlates to the problem behaviors. In part 2 of the study, an intervention procedure was developed based on the
results of part 1. Replacements were selected for the problem behaviors in the form of verbal solicitation, called functional communication training. In all participants, a downward trend, almost to zero, was noted with regard to the problem behaviors when functional communication training was employed.

Northup et al. (1991) used brief functional analysis sessions to assess aggressive behaviors by three participants. Participants were selected based on the occurrence of aggressive behavior. Aggressive, appropriate, and mand behaviors were assessed. Each functional analysis session began with alone, however the remaining conditions, tangible, demand, and social attention sessions were counterbalanced across the sessions. Each participant displayed a higher incidence of behavior during one conditions in comparison to the other conditions. Each participant was taught a sign to use during the condition where aggression was the highest. Results of this study included a decrease in aggressive behaviors for all participants and an increase in appropriate and mand behaviors in a very short period of time.

Nine developmentally disabled participants took part in the Iwata, Dorsey, Slifer, Bauman, and Richman (1994) study that assessed the functional relationships between self-injury and environmental events. Participants were assessed across four conditions. Eight sessions were run per day, two of each condition. Conditions consisted of social disapproval, academic demand, unstructured play, and alone. Six of the nine participants showed an increased likelihood that the problem behaviors were contingent on automaticity. This study strongly supported the emerging idea that pre-treatment assessment could improve the effectiveness of the behavioral interventions that had been developed based on a single variable baseline.
Neef and Iwata (1994) also noted the ever-growing body of research detailing multiple maintaining contingencies of aberrant behaviors. Day, Horner, and O’Neill (1994) implemented a functional analysis resulting in multiple maintaining contingencies.

The three individuals who participated in the Day, Horner, and O’Neill (1994) research had significant intellectual disabilities. An ABAB design was used first to test the maintenance of the target behaviors by multiple contingencies. Want and Escape were the conditions assessed. For the second phase of the study an alternating treatment design was employed to assess the effectiveness of functional communication training. Functional analysis data revealed the behaviors had maintaining contingencies housed both in escape and access to tangible items. Intervention resulted in a reduction of the behavior during the trained condition however; there was no reduction evident in the untrained condition. The discussion lent itself to the strength of the function of behavior, though clinical implications appear to support training for generalization by function.

Mace and Lalli (1991) used functional analysis to assess the environmental determinants of bizarre speech in an adult with moderate mental retardation. Antecedent and consequence conditions were assessed. Attention of others and escape from demand were found to be the highest correlates to engaging in echolalia. Two interventions were used in the follow-up experiment, scheduled attention and initiation and expansion training. Both non-contingent attention, based on a schedule, and attention for appropriate vocalizations were used. Extinction was employed with regard to bizarre vocalizations. A sequence of phases was employed that varied the time interval for the non-contingent attention and reversals back to baseline.
During the second intervention, conversation initiation and expansion were taught in the kitchen while engaging in a food preparation task. A multiple baseline across initiation and expansion skills was used to assess intervention 2, as it was not possible to employ a reversal with initiation and expansion skills having been acquired by the participant. Maintenance and generalization probes saw consistency in the low levels of bizarre speech achieved through intervention as well as high levels of initiating and expanding conversation.

Chung (1998) used functional assessment to assess echolalic behavior that was immediate in nature. A girl with Rubinstein-Taybi Syndrome (RTS) served as sole participant in the study. Features of RTS include short stature, beaked nose, slightly malformed ears, a highly arched palate, antimongoloid slant of eyes, heavy or highly arched eyebrows, small head, broad thumbs and/or great toes. At times, the thumbs and/or great toes are angulated. Other common characteristics include a red flat birthmark on the forehead, hyper extensible joints, small tilted pelvis, and extra hairiness. Mental retardation is associated with RTS. Communicative conditions were assessed including familiar task, unfamiliar task, conversation on a familiar topic, conversation on an unfamiliar topic, alternate talking to other person (where the experimenter alternates between talking to the participant and talking to another person). Familiar, concrete activities provoked the least occurrence of echolalia while unfamiliar, conversational-based activities provoked the greatest occurrence of echolalia.

Using 10-minute sessions, a within-subject multiple baseline was implemented across treatment conditions of task, conversation, alternate talking to other person, and daily living. 2 interventions were used during treatment, prevention of echoing and
response-cost token system. To prevent echolalia, the experimenter used simple language such as “Do this” to reduce the opportunity for echolalia. Treatment resulted in a decrease from 84% of conditions to 6.5% of conditions. Generalization was noted during non-treatment conditions as well.

Functional analysis has also been used with repetitive vocalizations, most recently Ross (2002). Using a modified functional analysis procedure, where the number of questions asked during a condition determined the length of the condition (1-5 minutes), Ross assessed conversational exchanges for 3 participants with autism, ages 9-14 years. Three behaviors were assessed, correct responses, faulty responses (including additional or unnecessary information, previously identified perseverative topics, or omitted responses), and conversational units (a verbal exchange between a conversant and the participant in which the participant responds as both a speaker and a listener.) A modified functional analysis procedure was used. Attention, escape, tangible, and alone conditions were assessed. The length of each session varied from 1-5 minutes and was based on five question/statements presented by the conversant and the participant’s responses to each question/statement. Multiple functions were found for one participant, a single function for the other participants.

Using scripts, Ross employed Functional Communication Training as the intervention for all participants. Each participant was taught scripts that would obtain the consequence that was suggested to have been maintaining the faulty responses during the functional analysis. Participants were trained to read appropriate conversation units from a list of scripted questions. To train the participants, the experimenter modeled the question, the participant imitated the question, then the experimenter pointed to the
question and said, “What does this say?” The experimenter waited 2 seconds for a response. If the response was correct, a token was given to the participant. If the participant did not respond, the experimenter would repeat the model and praise the participant’s imitation of the question. Once 80% of the questions were read correctly, part two began.

During part two, the experimenter presented the scripted card and said, “Ok, you ask the question this time.” Tokens were given for correct responses. If the participant did not read the question the experimenter would model the question. If the participant started to answer the question a token response cost was implemented. Increases in the conversational unit were seen when paired with a response cost. The data in this study suggested that functional analysis was effective in determining the maintaining contingencies for faulty speech. Additionally, the data suggest that scripts, tokens with response cost and extinction were an effective treatment package for reducing faulty speech and increasing appropriate speech in children with autism.

1.2.4 Summary

Research has demonstrated effective interventions for immediate echolalia. The body of research reviewed above has demonstrated the effectiveness of functional assessment procedures and function-based interventions within the context of aggressive and self-injurious behaviors. Further research is warranted regarding the assessment of non-contextual, often delayed, speech or echolalia. Function-based interventions should be developed with regard to these functions and assessed for effectiveness. The body of research also indicates a need for research regarding the abnormal speech of young children with autism or autism spectrum disorders.
1.3 Research Questions

1. To what extent does functional assessment yield data suggesting different functions (i.e., attention, escape, tangible, or self-reinforcing) for non-contextual speech by children with pervasive developmental disorders, autism, and other developmental disabilities?

2. To what extent are interventions developed from the results of functional assessments effective in reducing the occurrences or duration of non-contextual speech?
CHAPTER 2

METHOD

The research methods, data collection, and analysis of the data as is related to the research questions are described in this chapter. Description of the participants, setting, procedures, measurement, experimental design, dependent variables, and social validity are detailed.

2.1 Participants

Four boys, ranging in age from 5-7 years, participated in the study. Two boys were diagnosed with autism, one boy was diagnosed with pervasive developmental disorder not otherwise specified and one boy held diagnoses of Fragile X syndrome and autism. All four boys were receiving intensive behavioral intervention at the time of the study. The director of the agency providing the intensive behavioral intervention recommended participants for the study. All boys were selected to participate in the study based on the presence of non-contextual speech in their behavioral repertoire. Verbal abilities of the boys ranged from 3- to 5-word utterances, including commenting and questioning. Three participants attended school (accompanied by an aide), for approximately 15 hours a week and received approximately 20-25 hours of intensive behavioral intervention in the home throughout the duration of the study. One participant attended school (accompanied by an aide), approximately 30 hours a week and received
approximately 12 hours of intensive behavioral intervention in the home throughout the study. A team trained in behavioral principles administered therapy for each participant.

Informed consent was given by the parent(s) of each child prior to the start of the study. The purpose of the research, methods to be used, the possible detriments, and the possible benefits to be gained from their child’s participation were discussed with each parent. Permissions for detailing informed consent and parental rights were provided to and signed by all parents prior to the start of the study (Appendix A).

2.1.1 Gavin

Gavin was a 7-year-old male attending first grade in a general education classroom with the assistance of an aide. In addition, Gavin participated in 10-12 hours per week of intensive behavioral intervention in his home. He lived with his two parents and two dogs. Gavin did not have any siblings. In addition to a diagnosis of autism at age 4, Gavin had medical diagnoses of Fragile X syndrome and benign epilepsy.

Gavin was a generally a happy child who sought out peers’ and adults’ attention. His father stayed home with Gavin when Gavin was not in school or participating in intervention sessions. Gavin liked to be right and would get upset (he would say sorry often and try to move away from the situation) during situations when he was wrong. He often went on trips with his family to racecar events and arts festivals.

Gavin was 69 months at the time of his most recent assessments for autism. Instruments used to determine his current levels of functioning included Bayley Scales of Infant Development (Second Edition) (Bayley, 1993), Vineland Adaptive Behavior Scales
(Sparrow, Balla, & Cicchitti, 1984), *Merrill-Palmer Scale of Mental Tests* (Stutsman, 1981), *Wechsler Preschool and Primary Scales of Intelligence- Revised* (WPPSI-R) (Wechsler, 1989). For a summary of the results see Figure 2.1.

Gavin’s non-contextual speech was defined to include phrases found in movies, including Harry Potter (e.g., “Hermione, we need to go find Harry”) and cartoons, including Sponge Bob Square Pants (e.g., “Hi Squidward!”), Curious George (e.g., “The man with the yellow hat!”), Sesame Street (e.g., “Bert, let’s go to the zoo. Ok, Ernie!”), Rugrats (e.g., “Angelica, help me!”), Blue’s Clues “A clue, I found a clue!”), Dora the Explorer (e.g., “Swiper and Dora went for a walk.”), Maisy, Teletubbies, network television, including Noggin (e.g., “Today’s Noggin show was brought you by your good friends at McDonald’s,” previous conversations, math talk (e.g., “add 5 carry the 1,”) and racing talk involving Nascar (e.g., “Jeff Gordon rounds the far outside turn!”)

**2.1.2 James**

James was a 6-year-old boy diagnosed with Pervasive Developmental Disorder Not Otherwise Specified. He lived at home with his parents, one 7-year-old sister and his dog. He attended a general education pre-kindergarten classroom (with an aide), 3 days a week for 3 hours. In addition he received 20-25 hours per week of in-home intensive behavioral intervention.

James’s favorite activities were watching cartoon-based movies, such as *The Lion King*, and playing with animals. James did not seek out social attention from his peers, though he did seek out the attention of his mother many times per day by reaching for her or occasional calling, “Momma.” If asked to engage in a task that was difficult or where
he was unsure of the correct response, James would often cry. James was generally a happy child if familiar people were around and anxious with unfamiliar people.

James was 69 months at the time of his most recent assessment for autism.


Table 2.1: Demographic data for each participant.

<table>
<thead>
<tr>
<th></th>
<th>Gavin</th>
<th>James</th>
<th>Malcom</th>
<th>Steven</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years</td>
<td>5-9</td>
<td>5-9</td>
<td>6-6</td>
<td>6-0</td>
</tr>
<tr>
<td>Communication&lt;sup&gt;b&lt;/sup&gt;</td>
<td>75*</td>
<td>53*</td>
<td>47*</td>
<td>76*</td>
</tr>
<tr>
<td>Receptive&lt;sup&gt;c&lt;/sup&gt;</td>
<td>32</td>
<td>29</td>
<td>28</td>
<td>32</td>
</tr>
<tr>
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<td>24</td>
<td>25</td>
<td>38</td>
</tr>
<tr>
<td>Social&lt;sup&gt;b&lt;/sup&gt;</td>
<td>70*</td>
<td>63*</td>
<td>54*</td>
<td>68*</td>
</tr>
<tr>
<td>Daily Living Skills&lt;sup&gt;b&lt;/sup&gt;</td>
<td>90*</td>
<td>58*</td>
<td>40*</td>
<td>66*</td>
</tr>
<tr>
<td>IQ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual/Spatial&lt;sup&gt;d&lt;/sup&gt;</td>
<td>106*</td>
<td>82*</td>
<td>64*</td>
<td>99*</td>
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<tr>
<td>Composite&lt;sup&gt;e&lt;/sup&gt;</td>
<td>89*</td>
<td>55*</td>
<td>45*</td>
<td>57*</td>
</tr>
</tbody>
</table>

Notes. * = standard scoring measures

<sup>a</sup> = *Bayley Scales of Infant Development* (Second Edition)
<sup>b</sup> = *Vineland Adaptive Behavior Scales* Standard Scoring Measure
<sup>c</sup> = *Reynell Developmental Language Scales* (U.S. Edition) Developmental age in months
<sup>d</sup> = *Merrill-Palmer Scale of Mental Tests* Standard Scoring Measure
<sup>e</sup> = *Wechsler Preschool and Primary Scales of Intelligence – Revised* (WPPSI-R)
James’s non-contextual speech was defined as including phrases and songs found in movies and computer games, specifically ‘The Lion King’ and ‘Making the Pizza.’ Non-contextual speech also included phrases heard in his environment (e.g., “Hey guys, c’mon, let’s go!” “Oh no!” “In theatres now,” “Coming soon,” “When you wish upon a star,” and “Achoo.”) James’s non-contextual speech also included naming animals such as lion, cheetah, and hippopotamus in a non-contextual format (e.g., while putting together a puzzle with a food theme). James’s non-contextual speech also consisted of consistent phonemic patterns, using the phonemes /a/, /d/, /i/, and /g/.

2.1.3 Malcom

Malcom was a 7-year-old male attending full-day kindergarten in a cross-categorical special needs classroom. Inclusion services were provided in the typical kindergarten classroom 1 hour a day, 4-5 days a week. In addition, he was receiving 15 hours per week of in-home intensive behavioral intervention. Malcom was diagnosed with autism at the age of 2 years 6 months. He began receiving IBI services at the age of 3 years. Malcom had 3 sisters and 1 brother. All siblings lived with Malcom and his two parents. For 9 months of the year, two grandparents also lived with the family.

Malcom was generally a happy child unless he was told, “No.” If told ‘no,’ Malcom would whine and sometimes cry in response. At home, many children, including siblings and cousins, surrounded Malcom. He seemed to enjoy their company and would often request them to come play.

Malcom was 78 months at the time of the most recent evaluation for autism. Instruments used to determine his current levels included *Bayley Scales of Infant Development* (Second Edition) (Bayley, 1993), *Vineland Adaptive Behavior Scales*
Malcom's non-contextual speech was further defined as including people's names, and phrases heard in his environment (e.g., "Will call," "Let's count airplanes," "1,2,3 blast off!" "OK," "All done," "I get it," "Hot dog!" "Ice cream!" "Draw this," "Blue is a clue." "Who!" "Call clinic?" "So," and "All done.") Malcom's non-contextual speech was also characterized by repetitive phonemic patterns involving the phonemes /d/, /i/ and /g/.

2.1.4 Steven

Steven was a 6-year-old male diagnosed with autism. At the time of the study he was attending kindergarten (with an aide), in a general education classroom. In addition, he was participating in 20-25 hours of intensive behavioral intervention in his home. He lived with his sister and two parents.

Steven was a complacent child. He was eager to emit the correct response to questions and would get frustrated if he was wrong or did not understand the question. He liked racecar tracks and air hockey games that he could play with his sister. Steven also suffered from a significant gross motor delay. During play, his parents and intervention team focused on gross-motor based activities such as jumping on trampolines and running.

Steven was 6-0 years during his most recent assessments for autism. Instruments used to determine his current levels of functioning included Bayley Scales of Infant Development (Second Edition) (Bayley, 1993), Vineland Adaptive Behavior Scales.
(Sparrow, Balla, & Cicchitti, 1984), *Merrill-Palmer Scale of Mental Tests* (Stutsman, 1981), *Wechsler Preschool and Primary Scales of Intelligence- Revised* (WPPSI-R) (Wechsler, 1989). For a summary of the results see Figure 2.1.

Steven’s non-contextual speech was defined to include phrases during his day including, “Oops!” “Whoops!” “No button,” “This is silly!” “Be all done?” “Being a good Steven!” “It’s about time to go to school,” “Next time,” “Stop!” “Maybe,” “These are blue,” “There is no yelling,” “Back, back, back,” “What goes up must come down,” “Get down,” “Pow, pow, pow!” “No bowling,” “Wow, look at that!” Steven also engaged in non-contextual speech in the form of repeating driving directions, counting and saying the ABCs aloud. Additionally, Steven’s non-contextual speech included material from Dr. Suess books such as, “Red fish, blue fish, one fish, two fish” and “Hop on pop.”

2.2 Settings

The study took place in each participant’s home. The functional analysis sessions were conducted in the room primarily used for intensive behavioral intervention. These were approximately 15 feet by 12 feet, lined with bookshelves containing toys, academic activities, and therapy materials. In the center of the room was a child-sized table with two chairs. The intervention phase of the study for Steven took place throughout the house, at school, and in his community. These environments included but were not limited to the kitchen, dining room, living room, bedroom, front yard, backyard, and playground equipment.

2.3 Experimenter

The experimenter was a M.A. student in Applied Behavior Analysis at The Ohio State University. In 2000 she received a B.A. in Psychology and Speech & Hearing.
Science from The Ohio State University. During the study she was employed as a Case Supervisor for the Intensive Behavior Intervention Clinic of a local hospital. The experimenter’s duties at the hospital included assessing the needs of the children with autism and pervasive developmental disorder and their families, developing interventions to meet those needs, and training staff on the implementation of those behavioral interventions under the direction of the supervising psychologist.

A research assistant implemented the functional analysis sessions for Gavin. She was a full-time, first-year, doctoral student of Applied Behavior Analysis at The Ohio State University. She received her M.A. in Special Education from The Ohio State University in 1999.

2.3.1 Data Collectors

Two observers collected data on non-contextual speech throughout the study. The experimenter served as the primary data collector and observer. The other observers were doctoral students in the special education program at The Ohio State University. The observer was in her second year of the program and previously had extensive experience working with children in special education. The experimenter met with the group every 1-2 weeks for approximately 1-2 hours to discuss developments and receive supervision the study.

2.4 Definition and Measurement of Dependent Variables

2.4.1 Definition

The frequency and duration of non-contextual speech were the dependent variables in the study. For this study, non-contextual speech included intelligible utterances and consistent phonemic patterns that are unrelated to the conversation topic or
ongoing activities. Non-contextual speech can include (but is not limited to) words or phrases from movies, books, commercials, or songs that are recited or repeated. These words or phrases lack a relation to the current context and are repetitive in nature. The following list describes different examples of non-contextual speech that were targeted in this study.

A given phrase or sentence can be considered non-contextual in some instances, and contextual in others. For example, a child and his peer are pretending to race racecars; it would be considered contextual if one child narrates the event, “Bob Johnson is in the lead, and Rob Murphy is close behind.” This narration becomes non-contextual if the setting changes (e.g., the child narrates a car race while doing his math homework, or while playing with a puzzle.)

Non-contextual speech may also appear in what seems to be a related context. While turning the pages of the book, *The Grinch Stole Christmas*, by Dr. Suess, a boy verbalizes phrases from the book, *One Fish, Two Fish, Red Fish, Blue Fish*. Though the books are linguistically similar, written by the same author, and have a similar style, the phrases verbalized are still considered non-contextual. Another example of this would be, a magic wand was on the floor in the play area; and a boy picks up the wand, places it next to him, and begins to narrate a particular scene from the movie *Harry Potter* (the theme of which is magic). The narration is considered non-contextual because the boy is not pretending to act out the scene, nor is he manipulating the wand during the narration of the scene.

Non-contextual speech can occur during independent or interactive play as well as in response to a question or instruction. When asked his age, a boy may reply, “Stocks
went up 10 cents today." Had the response been "I am 6 years old," when the boy was really 8 years old, the response would have simply been inaccurate. The stock response is inaccurate and non-contextual.

Due to the decreased articulation skills of some of the participants, consistent phonemic patterns were also considered non-contextual speech for the purpose of this study (e.g., while a child is playing with Legos he verbalizes, "bidda bidda ooda bidda.")

One occurrence of the target behavior is defined as intelligible words or consistent phonemic patterns with less than 3 seconds between each word or non-word utterances. The end of the occurrence is marked by 3 seconds without the presence of non-contextual words or a phonemic pattern. For example, if the child demonstrated non-contextual speech for 5 seconds, paused for 3 seconds, and then exhibited non-contextual speech again for 10 seconds, two occurrences of the target behavior were noted. The specific target behavior varied across the participants.

2.4.2 Measurement and Recording of Data

Functional analysis sessions for all participants were videotaped. The video camera was placed so as to record activities that occurred throughout the room, before, during, and after the occurrences of non-contextual speech. Audio recordings were also made of the functional analysis sessions for Steven and Malcom. A small microphone was placed discreetly on the shirt of the child to record all utterances and verbal behavior during the sessions. The microphone was part of Radio Shack's Wireless FM Microphone System (Model #32-1221B). The receiver box for the system was placed in a corner of the room out of view of the participant. A voice-activated cassette recorder (Radio Shack Model #CTR-122) was attached by a monowire (also available at Radio Shack).
Shack) to the receiver box. The cassette recorder recorded all sounds onto an audiocassette. All verbalizations made by the participants were recorded using this system.

All data was taken from the video and audio tape recordings. A stopwatch was used to measure the duration of each occurrence of non-contextual speech. The total duration for each session was achieved by adding all the duration per occurrences together. At the end of each recording session, the number of occurrences was counted to determine the frequency per session. Occurrence and duration measures were recorded using the data sheet found in (Appendix B). To achieve the total duration per occurrence, the total duration was divided by the frequency.

2.5 Procedures to Ensure Believability of Data and Treatment Integrity

2.5 Interobserver Agreement

Interobserver agreement (IOA) was assessed for the dependent variables, frequency and duration, during functional analysis sessions of Phase 1 and both baseline and intervention of Phase 2. The experimenter trained four secondary observers to recognize non-contextual speech by Steven. Training included (1) providing definition of dependent variable, (2) secondary observers listening and scoring 2 half hour audiotapes that displayed non-contextual speech, and (3) clarifying discrepancies between the experimenter and the secondary observer. The data was then compared to the experimenter’s to check for agreement. IOA reached 100% on training tapes before evaluating experimental sessions.

Agreement was assess on 30% of the functional analysis sessions conducted. Agreement was assessed on 25% of the baseline and intervention sessions conducted.
The observer used the same data sheet used by the primary observer (Appendix B). Percent agreement was calculated using a comparison of the total frequency and total duration per session for the primary and secondary observers. The lowest measure was then divided by the highest measure and multiplied by 100 to achieve percent agreement.

2.5.2 Treatment Integrity

A secondary observer watched videotaped sessions of Phase 2 (Steven) and measured the integrity of the independent variable. The observer completed a checklist to measure the extent to which reinforcement procedures were given accurately (Appendix C). The observer used a checklist that included aspects of the independent variable, reinforcement techniques, and extinction.

2.5.3 Social Validity

Parents and therapists who participated in Phase 2 (Steven) of the study were asked to fill out a social validity questionnaire (Appendix D). The questionnaire required parents and therapists to agree or disagree on a scale of 1-5 (1 = strongly agree; 5 = strongly disagree) with 10 statements about the study. The target behavior, procedures, and results were assessed (Cooper, Heron, & Heward, 1987).

2.6 Experimental Design

The study consisted of two phases. Phase 1 was functional assessment. Phase 2 was intervention. Part 1 of this study was used to determine the non-contextual speech and the function of the non-contextual speech. The first phase of the study consisted of three significant parts: interviews with the participant’s parent(s), direct observations of each participant in the home and therapy environments, and a functional analysis. An alternating treatment design was used during the functional analysis phase. This design
enabled direct comparison between the conditions including contingent attention, redirection, interactive play, alone with activities, escape, free play, tangible, and alone. Fractionation between the data paths demonstrated the differential effects of the independent variables. Specific conditions were used for each participant based on the interview and direct observations.

Due to time constraints, only Steven participated in Phase 2, the intervention phase of the study. The intervention phase was implemented using an AB design. This design allowed for the application of the intervention to be in relation to the change that occurred in the behavior. When the baseline data was constant intervention began. Intervention continued as data descended and was ended when data was constant.

2.6.1 Phase 1: Functional Assessment

This phase of the study consisted of three parts: interviews, observations, and a functional analysis.

2.6.1.1 Interviews with Parents. The experimenter conducted formal, separate interviews with the parents of the participant. Informal interviews were conducted with in-home therapists. In-home therapists were selected for interviews based on the regularity in which they entered the home environment (at least 3-4 times per week for at least 1.5 hours). These interviews were recorded using audiotape. The Functional Assessment Interview Form (O’Neill et al., 1997) was used in its entirety to guide the formal interviews with the parents (Appendix E). This interview helped determine variables that were associated with the occurrence of the target behavior as well as variables that did not appear to be associated with the target behavior. Additionally, appropriate behavior of the student was determined and the variables associated with the
appropriate behaviors were noted (Chandler & Dahlquest, 2002). Information obtained from the interview was used to determine details regarding the direct observation of the participant, including times for observation, activities for observation, and behaviors to observe.

2.6.1.2 Direct Observation of Participant. Settings for direct observation were determined using the information obtained in the interviews. The experimenter observed where, when and during the activities in which the behavior was most likely to occur. The experimenter noted antecedents, behaviors, and consequences for non-contextual speech using the A-B-C data sheet (Appendix F). Using this form allowed for consistent observation of the following: antecedents such as time, people, places, and transitions; behaviors including the target behaviors, possible replacement behaviors already located in the behavioral repertoire of the participant, and other behaviors that may be of interest; consequences such as social attention, preferred objects or activities, reprimands or redirection (Mueller, Jenson, Reavis, & Andrews, 2002).

These observations occurred in the family room and therapy room for each participant. 2-3 observations were conducted for each participant lasting approximately one half-hour each. The purpose of the direct observation was to identify variables that occur before and after the target behavior as well as appropriate behavior. This element of the functional assessment was used to determine the relevant conditions that were to be used during the functional analysis.

2.6.1.3 Functional Analysis. A functional analysis for Gavin and Steven was conducted over a period of 1 month, during 1-2 sessions per day, 2-3 times per week. Each condition lasted 5 minutes and 1- to 3-minute breaks separated conditions. A
functional analysis for James and Malcom was conducted over a 2-week period of time, 1-2 sessions per day, 4 times per week, and each condition lasting 5 minutes. Each functional analysis session consisted of 5 conditions typically, with 6 for James. The order of the conditions was changed each session. The following conditions were assessed: Alone, Alone with Activities, Interactive Play, Demand, Contingent Attention, and Redirection. For the contingency assessed in each condition see Table 2.2. For child participation in the condition see Table 2.3 below.

<table>
<thead>
<tr>
<th></th>
<th>Attention Seeking</th>
<th>Avoidance</th>
<th>Automatic SR</th>
<th>Control</th>
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</thead>
<tbody>
<tr>
<td>Contingent Attention</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redirection</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alone w/ Activities</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Alone</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Interactive Play</td>
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<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Table 2.2: Contingency assessed by condition.

_Alone. (James)_ The Alone condition was designed to test for automatic reinforcement, where the behavior itself is the maintaining contingency. This is also known as self-stimulatory behaviors. The research team determined that the alone with activities condition sufficiently tested this contingency while creating a more natural condition that was more likely to occur in the child’s environment. Therefore it was
discontinued and not used with other participants. During Alone the child was placed in an empty room alone for 5 minutes. The only item present was the video camera.

<table>
<thead>
<tr>
<th></th>
<th>Contingent Attention</th>
<th>Redirection</th>
<th>Demand</th>
<th>Interactive Play</th>
<th>Alone w/ Activities</th>
<th>Alone</th>
</tr>
</thead>
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<tr>
<td>Gavin</td>
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<td>X</td>
<td>X</td>
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</tr>
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<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>Malcom</td>
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<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Steven</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 2.3: Participation per condition for each child.

James was directed to a completely empty room, 12’X12’. The experimenter gave the instruction, “Stay here for a little while, I will be back.” He was then left alone in the room for 5 minutes. For safety purposes the experimenter remained within audible distance of the therapy room. If he left the room, the experimenter directed him back to the room by taking his hand and leading him back to the room.

**Alone with Activities.** (All participants) The Alone with Activities condition was designed to test the hypothesis that the child’s target behavior itself was the maintaining contingency. During Alone with Activities, the child was alone in a room, engaged in an independent activity.

The child was seated at the table in the therapy room and a simple activity was placed on the table. Activities included puzzles, Legos, coloring, matching games,
racecar tracks, and memory. Activities were rotated between sessions. The experimenter gave the instruction, “Play with the puzzle. I am going to leave the room for a little while.” The experimenter would then leave the room for 5 minutes. For safety purposes the experimenter remained within audible distance of the therapy room. If the participant left the room, the experimenter prompted him back to the room and to the activity at the table. The experimenter then gave the instruction again.

*Contingent Attention.* (All participants) The Contingent Attention condition was designed to test the hypothesis that the child’s target behavior was maintained by the positive attention of others. During Contingent Attention, if the target behavior was emitted, the experimenter would provide social attention to the child.

The child was seated at the table in the therapy room and a simple activity was placed on the table. This activity included puzzles, Legos, coloring, matching games, and Memory. The experimenter gave the instruction, “Play with Memory, I am going to sit over here and read my book.” The experimenter then walked approximately 4-6 feet to the side of the child, sat in a chair, and then began to read a book (silently). Each time the child engaged in non-contextual speech, the therapist immediately stood up, walked over to the child, patted him on the head or back, and said “Hello (name), you are doing some nice talking/working over here!” and statements relevant to the specific non-contextual speech of the child. For example, if the child said, “Harry Potter is a wizard,” the experimenter might say, “That’s right Gavin! Harry Potter is a wizard.” The experimenter continued to give social praise and attention as long as the child engaged in the target behavior. The experimenter returned to her seat once the child stopped engaging in the behavior for 3 seconds. If the child engaged in appropriate speech during this time, the
experimenter did not respond and continued to read her book silently. If the child walked over to the experimenter and initiated an interaction in an appropriate verbal manner, the therapist simply acknowledged the child with a “Hi” and then returned to her reading.

**Redirection.** (All participants) The Redirection condition was designed to test the hypothesis that the child’s target behavior was maintained by the negative attention of others. During Redirection, if the target behavior was observed, the experimenter would provide attention to the participant in the form of a verbal reprimand, e.g. “No James, all done with talking about Spongebob.”

This condition differed from the attention condition with regard to the form of the attention. The redirection condition was implemented in the same manner as the attention condition, however when the participant engaged in the target behavior the experimenter gave the participant a verbal reprimand (e.g., “No Malcom, no more talking about Sarah.”) The experimenter continued to give verbal reprimands until the target behavior had ceased for 3 seconds.

**Escape.** (All participants) The Escape condition was designed to test the hypothesis that the child’s target behavior was maintained by escape from difficult tasks. During Escape, the child was given a demand. If the target behavior was observed, the experimenter would remove the demand.

The child was seated at the table in the therapy room. A task, such as coloring or math problems, was placed on the table in front of the child. This task was determined through observations and interviews for each child. The therapist was seated approximately 2-3 feet away on either side of the child. The therapist instructed the child to engage in a difficult task at the table. If the participant successfully engaged in the
difficult task, the experimenter refrained from giving verbal praise or reinforcing the participant in any way. The participant continued uninterrupted until the behavior occurred.

Steven was given a coloring activity. Malcom was given a tracing activity. Gavin was given math problems to complete. James was asked to engage in a spatial relation activity. These activities were kept consistent across all the Escape conditions administered.

If the participant engaged in behaviors other than the task or the target behavior, then the experimenter implemented a 3-step prompting procedure. First, a verbal prompt to perform the task was given. If the participant did not begin the task within 3 seconds of the verbal prompt, the experimenter modeled the task and repeated the verbal prompt. If the participant did not begin the task within 3 seconds of the model and repeated verbal prompt, the therapist provided hand-over-hand physical assistance to complete the task. If James or Malcom engaged in the target behavior at any time during the response period (3 seconds after the initial instruction) or the prompting procedure, the experimenter removed the task from the table immediately for the duration of the target behavior. Once the target behavior had ceased for 3 seconds, the experimenter represented the task and gave the instructions again. If Steven or Gavin engaged in the target behavior at any time during the response period or prompting procedure, the experimenter left the materials on the table and said, “Ok, you don’t have to [color or do math problems] right now.”

Interactive Play. (All participants) The Interactive Play condition was designed to serve as a control condition as it was the most similar condition to daily environmental
interactions with the child. During Interactive Play, the participant engaged in a preferred activity with the experimenter. These activities ranged from Playdoh to drawing.

The experimenter and the participant sat together at the therapy table or on the floor. Location was dependent on the activity. During this condition, the participant received one-on-one attention from the experimenter with regard to the current activity. The experimenter did not respond to any target behaviors. Activities for Malcom included building with Legos and playing with Playdoh. Activities for Steven included memory-based games and a sound association game. Gavin’s activities included interactive drawing.

2.6.2 Phase 2-Implementation and Evaluation of Intervention (Steven)

During phase 2, a team-based approach was used to implement the intervention developed from the results of the functional analysis for Steven. The team included parents, in-home therapists, and the experimenter.

2.6.2.1 Baseline. Two 30-minute time samplings were audio taped two times per day during therapy sessions and family interaction times. Frequency and duration data on non-contextual speech was taken from these recordings. When the data was consistent intervention began.

2.6.2.2 Intervention. 30-minute time samplings were audio taped two times per day during therapy sessions and family interaction times. Based on the results of the functional assessment, which indicated that positive reinforcement in the form of social attention was a maintaining contingency for Steven’s non-contextual speech, an intervention was developed using differential reinforcement of other behaviors.
The intervention began with differential reinforcement, in the form of social attention, of other behaviors (DRO) at an interval of 3 minutes. During therapy sessions, therapists wore a MotivAider set to 3 minutes to allow for ease in remembering the reinforcement schedule. Steven’s mother or father wore the MotivAider for the remainder of the day and continued to implement the intervention. Social attention, defined as a pat on the head and verbal praise (e.g., “Nice job!”) was given for every three minutes the behavior was not emitted (e.g., Steven was engaged in a puzzle. The therapist wore the MotivAider. After 3 minutes, the MotivAider buzzed indicating 3 minutes had passed. The therapist noted that Steven did not emit any occurrences of non-contextual speech during the 3-minute interval. The therapist walked over to Steven, patted him on the head and said, “Great job!”) Additionally, if the behaviors were emitted during therapist/participant or parent/participant interaction times, the therapist or parent would turn their body away from Steven until the behavior ceased. This procedure was implemented throughout Steven’s day.

After evaluating the first week of data collected from the audiotapes and anecdotal evidence collected from informal interviews with the parents and therapists, the research team determined the 3-minute interval was too long. To increase the effectiveness of the DRO, the interval was reduced to one minute. Additionally, a token economy was implemented in conjunction with the DRO at the start of week 2. A token was earned for every minute Steven did not engage in non-contextual speech. Once 10 tokens were earned, a backup reinforcer was made available, in this case a bowling computer game (e.g., Steven engaged in a coloring activity. The MotivAider buzzed indicating 1 minute of time had passed. The therapist noted that Steven had not emitted
the target behavior during the 1-minute interval. The therapist walked over to Steven, showed Steven the token board as she put another token on it (the tenth token, nine had been earned prior), and said, “Great job Steven! You earned all 10 tokens, let’s go watch the bowling game!” Parents and therapists continued to turn away from Steven while he engaged in the target behavior.

During the third week of the intervention information, behavior specific praise or correction, was added to the DRO and token reinforcement. After each minute that Steven did not engage in non-contextual speech he received a token and verbal praise (e.g., “You did a great job not talking about Spongebob!”) If Steven had engaged in the behavior during the minute, correction was given (e.g., “Sorry Steven, you do not get a token because you were talking about Spongebob.”)
CHAPTER 3

RESULTS

This chapter reports the results of the study. First, interobserver agreement results are presented with regard to frequency and duration measures of non-contextual speech. Independent variable integrity will also be discussed. Next, information gathered during the functional assessment including interview reports, direct observation comments, and functional analysis data is reviewed for each participant. Baseline and intervention data will follow for Steven. Finally, the results of the social validity questionnaires are presented.

3.1 Interobserver Agreement

3.1.1 Functional Analysis

*Frequency.* Two graduate students collected interobserver agreement (IOA) data on 22% of functional analysis sessions. IOA ranged from 78% to 100% with a mean of 91% during functional analysis sessions.

*Duration.* Two graduate students collected interobserver agreement (IOA) data on 22% of functional analysis sessions. IOA ranged from 74% to 100% with a mean of 94% during functional analysis sessions.
3.1.2 Baseline and Intervention

Frequency. Two graduate students collected interobserver agreement (IOA) data on baseline and intervention sessions. IOA ranged from 80% to 100% with a mean of 90% during baseline and intervention.

Duration. Two graduate students collected interobserver agreement (IOA) data on duration during baseline and intervention sessions. IOA was 92.4% and ranged from 79% to 100% during baseline and intervention.

3.2 Independent Variable Integrity

One graduate student observed six 10-minute videotapes of the implementation of the intervention by the therapists and the parents. Differential reinforcement of other behaviors, extinction, token reinforcement, and correction were assessed. Responses were scored using the treatment integrity data sheet (Appendix C).

3.2.1 Extinction

The mean rate of response accuracy was 92%. Response accuracy ranged from 85% to 100%. Table 3.3 displays the results for independent variable integrity.

3.2.2 Differential Reinforcement of Other Behaviors

The mean response accuracy was for differential reinforcement of other behaviors was 93.5%. Response accuracy ranged from 86.2% to 96%. Table 3.3 displays the results for independent variable integrity.

3.2.3 Token Reinforcement

The mean response accuracy for token reinforcement was identical to that of differential reinforcement of other behaviors. Accuracy averaged 93.5% with a range from 86.2% to 96%. Table 3.3 displays the results for independent variable integrity.
3.2.4 Information

The mean accuracy for the information procedure was 100%. The range of accuracy was 100% to 100%. Table 3.3 displays the results for independent variable integrity.

3.3 Gavin

3.3.1 Phase 1: Functional Assessment

3.3.1.2 Interview. The Functional Assessment Interview (O’Neill et al., 1997) was used to guide the interview. Both parents were available for the interview lasting 1.5 hours. The results of the interview follow. Gavin was a 7-year-old male attending first grade in a typical classroom with the assistance of an aide. He lived with his two parents and two dogs. Gavin did not have any siblings. Gavin had medical diagnoses of Fragile X syndrome and benign epilepsy as well as a psychological diagnosis of autism. Gavin was on Zoloft and Strattera during the study, with dosages staying constant throughout the study. Gavin also had a consistent diet throughout the study restricted only by a suspected allergy to apples. Gavin held a steady sleep cycle of 7-8 hours per night without waking.

Gavin’s parents expressed concern regarding two behavioral response classes, non-contextual speech and squeezing others’ hands when he appeared to be angry. They described the non-contextual speech in two forms: narrating current environmental events and short phrases taken from prior conversations, favorite television shows, and favorite movies. Narrating current environmental events often included speaker identification, such as “Chuck is coming into the classroom to check on the kids, I said” when a teacher would come into the classroom. Short phrases taken from movies or television shows
included material from the television shows Sponge Bob Square Pants, Dora the Explorer, Curious George, Rugrats, and Nascar racing as well as the movie Harry Potter.

Gavin’s parents reported the length of utterance of the non-contextual speech to be 10-20 word dialogues. Gavin’s parents’ also reported they had observed no evidence to support longer dialogues such as 8-10 minutes of a script of scene from Harry Potter. Gavin’s parents’ also reported they had observed no evidence to suggest a prevalence of immediate echolalia.

Events surrounding the occurrence of non-contextual speech included difficult academic tasks such as math homework, when left alone (though observers are within auditory range of the event), and meeting new people. The parents’ also noted that Gavin was never truly left alone. Due to safety concerns regarding perseverance on knives and the burners on the kitchen stove, someone was always within auditory distance of Gavin and he always had someone located on the same of the floor as him. The parents’ reported the behavior did not seem to occur in reference to any particular item.

Two interventions, verbal reprimand (e.g., “No movie talk Gavin”) and redirection with familiar questions (e.g., “How are you doing today?”) had been used with the goal of reducing the non-contextual speech. Little change in the occurrence of the behavior was noted. There was some doubt in the consistency of the implementation of these interventions.

3.3.1.2 Direct Observation. Two one-hour observations were videotaped. One observation occurred during an in-home therapy session. During the therapy session, the therapist consistently interacted with Gavin. The other observation occurred during family interaction time in the home. His parents interacted with him for 45 minutes of the
observation. The remaining 15 minutes he was left alone in another room. During this
time he engage in independent activities including a puzzle, a felt activity board, and an
art activity (drawing and coloring). At no point during the family interaction time, was
Gavin given a tangible item as a consequence for engaging in the behavior. During the
therapy session, Gavin did not engage in the target behavior during activities that
appeared to be simple. At no point during the therapy session was he given a tangible
item as a consequence for engaging in the behavior. Occurrences of non-contextual
speech were noted most often when the task demand was increased, such as math
problems, and when the therapist was engaged in paperwork or materials organization.

3.3.1.3 Functional Analysis. Figure 3.1 shows the number of conditions presented by the
experimenter to Gavin. 9 sessions, in which 5 conditions (contingent attention,
redirection, demand, interactive play, and alone with activities) were conducted, spanning
a calendar time of 4 weeks.

The top tier of Figure 3.1 shows the frequency of the target behavior per
condition. Demand showed the highest occurrence data, ranging from 4 to 18.
Contingent attention was consistently high, ranging from 2 to 22. Occurrence during
redirection ranged from 1 to 14. Interactive play showed occurrence data ranging from 0
to 9. Occurrence data for the alone with activities condition ranged from 0 to 4.

The middle tier of Figure 3.1 shows the total duration per condition in seconds.
Contingent attention showed the highest duration data ranging from 10 to 230 seconds.
Demand showed duration resulting in a range from 20 to 220. Duration for alone with
activities ranged from 0 to 200, though a spike was noted during the fifth session at 270
seconds. It should be noted during the alone with activities condition, once the behavior
began it the duration lasted through the remainder of the sessions. Redirection showed duration results ranging from 0 to 65. Interactive play resulted in duration ranging from 0 to 45.

The bottom tier of Figure 3.1 shows the average duration per occurrence during each condition in seconds. Attention showed the highest result, consistently ranging from 10 to 65. Alone with activities had duration per occurrence ranging from 0 to 50 with a spike noted at the fifth session of 138. Demand yielded an average duration range of 3 to 43 seconds. Interactive play yielded an average duration of 0 to 16 seconds. Redirection yielded the lowest average ranging from 0 to 3.
Figure 3.1. Frequency, total duration, and average duration of non-contextual speech by Gavin during functional analysis conditions.
3.4 James

3.4.1 Phase 1: Functional Assessment

3.4.1 Interview. The Functional Assessment Interview (O’Neill et al., 1997) was used to guide the interview. James’s mother was available for the interview lasting 1.5 hours. The results of the interview follow. James was a 5-year-old male attending a typical pre-kindergarten classroom with the assistance of an aide. He lived with his two parents, one sister (7 years old) and a dog. James had a diagnosis of pervasive developmental disorder. Gavin was not taking any medication during the study. Gavin also had a consistent diet throughout the study restricted only by a suspected allergy to gluten and casein. Gavin held a steady sleep cycle of 7-8 hours per night without waking.

During the interview, James’s mother expressed concern regarding the presence of non-contextual speech in his verbal repertoire. James’s non-contextual speech consisted of phrases heard in movies and conversations people in his environment have had. He would recite lines in the movie The Lion King such as, “Nala, let’s go up to the crest.” And from the television show Dora the Explorer, “Swiper, no swiping!” Another example of James’s non-contextual speech was reciting the animal names often while coloring or building with Legos. She estimated that James might engage in this behavior approximately 50% of his waking hours. James’s mother reported that the duration of the non-contextual speech could be 30 minutes without redirection from another person. Events surrounding the occurrence of non-contextual speech included being left alone, watching television, playing family games, playing outside on the swings, and at meal times. She noted that he engaged in high occurrences of the behavior when left alone. His
mother reported the behavior did not seem to occur in included speech about one particular item or groups of items. He was quiet during times that music was playing.

James's mother reported that no formal intervention had been implemented for James regarding the non-contextual speech. Informally, therapists from his home program and his parents had used redirection to other verbal tasks, such as responding to questions, e.g. “How old are you?” or “What is your daddy’s name?”

3.4.1.2 Direct Observation. The experimenter observed James on 2 separate occasions, one during a therapy session and the other during family interaction time. Each observation was videotaped and lasted approximately a half-hour.

During the family interaction time; James's mother and sister played Candyland with James. Throughout the interaction, non-contextual speech was observed. When James was taking a turn he said, “Swiper, no swiping!” While his mother was taking a turn, James said, “Completing the circle of life” and “Good job John!” During John’s next turn he said, “Two gray elephants and one hyena.” This game lasted approximately 20 minutes. During the last 10 minutes of the observation, John played by himself with a toy car. He pushed it back and forth on the carpet while reciting lines from the television show Sponge Bob Square Pants.

During therapy, the therapist rotated interacting with John and material organization/data keeping. When the therapist engaged John in what the therapist described as a more difficult activity, there were very few occurrences of non-contextual speech observed. Comparatively, non-contextual speech was not as prevalent when the therapist engaged John what the therapist described as a less difficult activity. The experimenter noticed the highest frequency of non-contextual speech during times when
James was engaged in an independent activity (e.g., John would place pieces in a favorite puzzle while the therapist was engaged in materials organization and data keeping.)

3.4.1.3 Functional Analysis. Figure 3.2 shows the number of conditions presented by the experimenter to James. 6 sessions in which 5 conditions were conducted spanned a calendar time of 2 weeks.

The top tier of Figure 3.2 shows the frequency of the target behavior per condition. Redirection had the highest frequency ranging from 9 to 13. Alone was next ranging from 6 to 12. Contingent Attention ranged from 9 to 11. Interactive Play ranged from 6 to 8. Alone with Activities ranged from 4 to 10 occurrences. The lowest results occurred during the Demand condition ranging from 3 to 7.

The middle tier of Figure 3.2 shows the total duration per condition in seconds. Duration was the highest in the Interactive Play condition ranging from 163 to 276 seconds. Contingent attention ranged from 94 to 230 seconds. The Alone condition resulted in a range of 150 to 225 seconds. Alone with Activities ranged from 111 to 276 seconds. Alone with Activities ranged from 23 to 269 seconds. The Redirection condition resulted in the lowest range from 28 to 48 seconds.

The bottom tier of Figure 3.2 shows the average duration per occurrence during each condition in seconds. Alone with Activities had the highest average duration ranging from 16 seconds to 98 seconds. Interactive Play ranged from 20 seconds per occurrence to 32 seconds per occurrence. Alone with activities ranged from 11 seconds to 38 with a peak at 96 seconds. Contingent Attention ranged from 18 to 43 seconds.
Figure 3.2. Frequency, total duration, and average duration of non-contextual speech by James during functional analysis conditions.
The Demand condition resulted in a range of average duration per occurrence of 2 seconds to 19 seconds with a peak at 58 seconds. The lowest duration per occurrence was during the Redirection condition ranging from 1 second to 3 seconds.

3.5 Malcom

3.5.1 Phase 1: Functional Assessment

3.5.1.2 Interview. The Functional Assessment Interview (O’Neill et al., 1997) was used to guide the interview. Malcom’s mother was available for the interview lasting 1 hour. The results of the interview follow. Malcom was a 7-year-old male attending full-day kindergarten in a cross-categorical special needs classroom. Inclusion services were provided in the typical kindergarten classroom 120 minutes a day 4-5 days a week. Malcom was diagnosed with autism at the age of 2 years 6 months. He began receiving IBI services at the age of 3 years. Malcom had 3 sisters and 1 brother. All siblings lived with Malcom and his two parents. 9 months of the year 2 grandparents lived with the family as well. Malcom was on Tegretal during the study, with dosages staying constant throughout the study. Malcom also had a consistent diet throughout the study restricted only by refusal to eat meat and rice. Malcom slept between 8 and 9 hours per night throughout the study.

Malcom’s mother expressed concern regarding several inappropriate behaviors, screaming, hysterical laughing, non-contextual speech and reoccurring self-stimulatory behaviors including stuffing, lining, and repetitive hand movements. She described several forms of non-contextual speech including immediate echolalia, repetitive conversations including phone conversations, excessive repetition of people’s names, and patterns of consistent sounds that she could not understand. Malcom’s mother reported
the occurrence of these behaviors when attempting to gain someone's attention and when engaged in an activity independently. She did note the frequency of the behavior seems to go up as the day progresses and more people enter the household.

3.5.1.2 Direct Observation. Three half-hour observations were videotaped. One observation occurred during in-home therapy, one during therapy in the clinic setting, and one observation took place during family interaction and independent playtime. The in-home therapy observation was very similar to the clinic-based therapy observation. Activities and interactions were consistent between the two settings. When engaged in activities that appeared to be difficult, low occurrence of the behavior was observed. A higher occurrence of the behavior was seen while the therapist was involved with paperwork or materials organization. These observations were consistent with the observation of the clinic-based therapy session. During the family interaction and independent playtime, the family engaged Malcom for 11 minutes while watching a family-home movie together. The observer noted low occurrences of the behavior during this time. For the remainder of the observation, Malcom engaged in self-stimulatory behaviors including stuffing and repetitive hand play. During this time higher durations of non-contextual speech were noted.

3.5.1.3 Functional Analysis. Figure 3.3 shows the number of conditions presented by the experimenter to Malcom. 9 sessions in which 5 conditions were conducted spanned a calendar time of 4 weeks.

The top tier of Figure 3.3 shows the frequency of the target behavior per condition. Redirection showed the highest frequency ranging from 7 to 14. Contingent attention ranged in frequency from 4 to 10. Alone with activities resulted in a range of 3
to 9. Interactive play ranged from 0 to 7 occurrences. Demand showed the lowest
frequency results ranging from 0 to 7 with a peak during session four of 11.

The middle tier of Figure 3.3 shows the total duration per condition in seconds.
Contingent attention ranged from 50 to 275 seconds. Redirection ranged from 85 to 255
seconds. Alone with activities ranged from 100 to 260. Interactive play ranged from 0 to
75. Demand ranged from 0 to 110 seconds.

The bottom tier of Figure 3.3 shows the average duration per occurrence during
each condition in seconds. Redirection ranged from 10 to 95. Contingent attention
resulted in a range of 15 to 60. Alone with activities ranged 15 to 75 seconds. Interactive
play ranged from 0 to 20 seconds. Demand ranged from 0 to 25.
Figure 3.3. Frequency, total duration, and average duration of non-contextual speech by Malcom during functional analysis conditions.
3.6 Steven

3.6.1 Phase 1: Functional Assessment

3.6.1.1 Interview. The Functional Assessment Interview (O’Neill et al., 1997) was used to guide the interview. Both parents were available for the interview lasting 1.5 hours. The results of the interview follow. Steven was a 6-year-old male attending kindergarten in a typical classroom with the assistance of an aide. He lived with his sister and two parents. Steven had a diagnosis of autism. Steven was not on any medication during the time of the interview or during the study. Steven had a consistent diet during the time of the interview and throughout the study, restricted only by a suspected allergy to gluten and casein. Steven held a steady sleep cycle of 8 hours per night though he did consistently wake up during the night for an undetermined length of time.

Steven’s parents expressed concern during the interview regarding the occurrence of non-contextual speech in his behavioral repertoire. Steven’s parents described the greatest number of occurrences of the non-contextual speech as short phrases that appear unexpectedly. The phrases consist of language used television shows, movies, computer games, books, academic goals, and environmentally based conversations. Steven’s parents also observed him engaging in occurrences of non-contextual speech that were long in duration. His parents both expressed that they did not know how long these occurrences were or for how long they could continue because his parents consistently redirected the behavior upon observing it.

According to Steve’s parents, non-contextual speech was in almost every aspect of Steve’s life. They noted occurrences during church services, art projects, difficult
computer games, while on the toilet, during bath time, at parties, soccer games, engaging in independent play activities and especially when his mother was preparing a meal.

Steve’s parents described 3 interventions that had been implemented at different periods of time with the intention to reduce the occurrence of non-contextual speech; extinction, redirection (through both language and activities), and a verbal reprimand of, “Steven, all done with that.” It is important to note when Steven is alone and his mother hears him engage in the target behavior; she will attempt to engage Steven in a conversation or activity.

3.6.1.2 Direct Observation. Two one-hour observations were videotaped. One observation occurred during an in-home therapy session. During the therapy session, the therapist consistently interacted with Steven. Occurrences of non-contextual speech were noted when the therapist was engaged in paperwork or materials organization. These occurrences of non-contextual speech were of moderate duration. No occurrences were noted during a task that the therapist defined as difficult. Very few occurrences of the target behavior were observed when Steven was engaged with the therapist. These occurrences were relatively short with regard to duration. The other observation occurred during family interaction time in the home. His parents interacted with him for the first 50 minutes. For the last 10 minutes of the observation, Steven was engaged in independent play activities while his mother prepared dinner. Steven engaged in non-contextual speech in the form of short phrases during the family interaction time. His mother quickly redirected these occurrences by modeling an appropriate statement for Steven to make. During the final 10 minutes of the observation, Steven’s mother was preparing dinner in the kitchen while Steven engaged himself in a train activity in the
living room. During this time he engaged in an occurrence of non-contextual speech with a greater duration than previous observations. Once his mother heard him engage in the behavior, she left the kitchen and entered the living room to engage Steven in a conversation about the trains.

3.6.1.3 Functional Analysis. Figure 3.4 shows the number of conditions presented by the experimenter to Steven. 9 sessions in which 5 conditions were conducted spanned a calendar time of 4 weeks.

The top tier of Figure 3.4 shows the frequency of the target behavior per condition. Contingent Attention resulted in the highest frequencies, ranging from 3 to 11 occurrences. Redirection ranged from 1 to 14. Interactive play, Demand, and Alone with Activities all ranged from 0 to 4.

The middle tier of Figure 3.4 shows the total duration per condition in seconds. Contingent Attention resulted in the highest duration of all the conditions, ranging from 25 to 175 seconds. Redirection ranged from 0 to 140 seconds. Alone with Activities ranged from 0 to 45 seconds. Both Interactive Play and Demand resulted in ranges from 0 to 20 seconds.

The bottom tier of Figure 3.4 shows the average duration per occurrence during each condition in seconds. Contingent Attention resulted in the highest average duration per occurrence ranging from 8 to 52. Redirection resulted in a range from 1 to 9 seconds. Results for Alone with Activities ranged from 0 to 9 seconds. Interactive Play and Demand both resulted in a average duration ranging from 0 to 3.
Figure 3.4. Frequency, total duration, and average duration of non-contextual speech by Steven during functional analysis conditions.
3.6.2 Phase 2: Baseline and Intervention

The top tier of Figure 3.5 shows the frequency of the target behavior during baseline and intervention for Steven. Baseline results showed an increase in frequency from 9 to 37. During the first week of intervention (DRO 3-minutes), the frequency of the behavior reduced from 38 to 7 but then spiked to 40 (higher than baseline) during a session that occurred directly following a family vacation. Based on anecdotal evidence the rate of the DRO was reduced to 1-minute for the second part of the intervention at which time token reinforcement was given as well. This reduced the frequency of the behavior to 4. Another spike to a frequency of 35 occurred following another family vacation. The final intervention included the addition of information to the DRO and token reinforcement. This resulted in a decrease in frequency to 8 occurrences and a decrease in duration to 8 seconds.

Figure 3.5 shows the duration of the target behavior during baseline and intervention. Baseline results showed an increase from 25 during session one to 115 during session 3. A decrease was seen from session four (100) to session seven (42). An increase was seen again up to 100 during session 10. The first part of the intervention resulted in a decrease in duration to 42 seconds however a spike occurred to 165 seconds following a family vacation. The addition of the token reinforcement and the reduction of the DRO rate to 1-minute result in a decrease to 7 seconds but a spike to 125 seconds occurred following another family vacation. The addition of information to the DRO and token reinforcement resulted in a reduction in duration to 8 seconds.

Figure 3.5 shows the average duration per occurrence of the target behavior during baseline and intervention. Baseline results showed an increase in average duration
Figure 4.5. Phase 2 data for Steven. Frequency, total duration, and average duration of non-contextual speech by Steven during baseline and intervention. Closed data points indicate sessions in which a therapist worked with Steven. Open data points indicate sessions in which Steven's parent worked with him. DRO = Differential Reinforcement of Other Behavior, TR = Token Reinforcement. Asterisks mark sessions one day following a family vacation or trip.
per occurrence through sessions four (7). A steady decrease was then seen through session #7 at 2 seconds per occurrence. The average then increased slightly and stayed steady through session 10 at just under 3 seconds. The average duration varied during the first part of the intervention ranging from 1.7 seconds to 4.6 seconds. During the second part of the intervention it ranged from 1 to 3.5 seconds. The third phase of the intervention resulted in a decrease in the average duration per occurrence from 3 seconds to 1 second.

3.7 Social Validity

Table 3.2 shows the results of the social validity questionnaire that was given to Steven’s parents and in-home therapists. Both parents and three therapists participated in the social validity questionnaire (Appendix D). All participants in the questionnaire felt the reduction of the target behavior was an age-appropriate skill and the reduction of the behavior would improve the quality of life for the participant. All participants agreed that the level of the target behavior prior to intervention affected his level of social acceptance.

Most participants agreed that a reduction of the target skill was a practical goal of the intervention. Most participants felt the intervention was not costly in terms of money or time. Most participants agreed that the availability of reinforcement would increase with the reduction of the target behavior. All participants agreed that they learned how to promote positive interactions with the participant and given the opportunity to participate in the study they all would.
Table 3.1. Parent and therapist response results for social validity questionnaire.

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<th>4</th>
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<tr>
<td>Costly (time)</td>
<td>1p</td>
<td>1p</td>
<td>2t</td>
<td>1t</td>
<td></td>
</tr>
<tr>
<td>Costly (money)</td>
<td>1t</td>
<td></td>
<td>2t</td>
<td>2t</td>
<td>2t</td>
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<tr>
<td>Decrease behavior = better off</td>
<td>2p</td>
<td>1t</td>
<td>2t</td>
<td></td>
<td></td>
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<tr>
<td>Decreased behavior = increased SR</td>
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<td>1t</td>
<td>1p</td>
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<td>Learned how to increase positive interactions</td>
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<td>Participate again</td>
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Notes. 1=strongly agree; 2=moderately agree; 3=neutral; 4=moderately disagree; 5=strongly disagree; p=parent; t=therapist
CHAPTER 4

DISCUSSION

This chapter discusses the results of the study that evaluates the effectiveness of using Functional Assessment methodology to determine maintaining contingencies and develop effective interventions for non-contextual speech by children with autism. The limitations of the study, results relative to the research questions, implications for practice, and suggestions for future research will be discussed.

4.1 Limitations of the Study

4.1.1 Length of Study

The study was conducted over a 5-month period. During that time four functional assessments were completed and one intervention, consisting of a baseline and an intervention condition, was implemented. Due to the limited research staff, each participant's functional assessment took about 1 month to complete. The functional analysis conditions were conducted 2-3 per week. Ideally, 2-3 functional analysis sessions would be conducted per day for 3 days in a row. This schedule would allow for faster analysis of the maintaining contingencies and development of an intervention for each participant.
Given more time, interventions based on the results of the functional analysis could be implemented for, Gavin and Malcom. Following the functional assessment, James's family relocated out of state.

4.1.2 Location of Study

The study took place in the children's homes. Two disadvantages should be noted due to these locations. First, participants were located in a 35-mile radius of Columbus, Ohio. Distance between participants' homes ranged from 8 miles to 46 miles. Travel time between houses ranged from 20 minutes to 45 minutes in one direction. The distance and time elements reduced the number of sessions that could be run during one day as well as the number of functional assessments that could be run at one time.

The second disadvantage of implementing the assessments and follow-up interventions in the participants' homes was inconvenience and intrusion in the families' homes and lives. It appeared to be easier for parents' to cancel scheduled sessions because the sessions were taking place in the home.

4.1.3 Technology

The sensitivity required observing the target behavior required sophisticated technology that was easily broken in the play environments of the children. A microphone receiver system was used coupled with a voice-activated recorder. Malfunctions of the technology or by the technology-user (experimenter) lead to loss of data. Additionally, video cameras and tripods were used for videotaping sessions. Placing these objects in the therapy rooms reduced the play area available to the children. Additional time was spent training the intervention team to use the equipment. To avoid
costly breakages and malfunctions, the use of this sensitive and valuable equipment around children must be closely monitored and staff must be properly trained.

4.1.4 Length of Sessions

With regard to the functional analysis sessions, the lengths of the conditions were kept at 5 minutes. Shorter conditions may have also yielded similar results in a shorter period of time. Keeping all conditions 5 minutes in length reduced the number of functional analysis sessions could be conducted during a day.

The length of the intervention sessions was 30 minutes. 2 sessions were recorded daily and the tapes were reviewed weekly. Accurate data collection was difficult due to recording duration measures for the entire 30-minute session.

4.1.5 Procedural Adaptation

Traditionally, the Escape condition dictates the removal of the task demand upon observation of the target behavior. For 2 participants, Gavin and Steve, the removal of the task seemed to have a punishing effect on their behavior. Immediately following the removal of the task, these participants would stop engaging in the target behavior and say, “Hey, give that back!” Due to the punishing effect of the consequence, the procedure was adapted beginning session 4 for both participants. The revised procedure called for the experimenter to leave the task on the table but verbally instruct the participant, “Ok, you don’t have to do you math problems now.” When the behavior had been absent for 3 seconds, the experimenter verbally instructed the participant, “Now it’s time to do your math problems.”
4.2 Research Questions

*To what extent does functional assessment yield data suggesting different functions (i.e., attention, escape, tangible, or self-reinforcing) for non-contextual speech by children with pervasive developmental disorders, autism, and other developmental disabilities?*

The results of the functional assessment interview and direct observations were valuable in clearly defining the target behavior for each participant. For one participant, Steven, the functional assessment interview suggested that task avoidance and automatic reinforcement was a maintaining contingency for the target behavior. The direct observation suggested that social attention might be an additional maintaining contingency. Given only this information, an intervention could have been developed for Steven however; this intervention would not have been based on what the functional analysis indicated as the maintaining contingency for non-contextual speech.

The functional analysis consisted of clearly defined contingencies for the behavior in different situations. This analysis yielded data that suggest attention from others was a maintaining contingency for non-contextual speech. There is evidence of fractionation between the data paths for both Contingent Attention and Redirection in comparison to the Demand, Interactive Play and Alone with Activities conditions in the frequency analysis. Additionally, the total duration and average duration measures for Contingent Attention further support the suggestion that attention from others is a maintaining contingency. The functional analysis for Steven did not yield data that indicated any other maintaining contingencies amongst those conditions tested.

For Gavin, the functional assessment interview resulted in a clear differentiation between contextual and non-contextual statements. Additionally, Gavin was reported to
emit this behavior during task demands and social situations. Direct observations supported the report that Gavin emitted the behavior during task demand, but also indicated that an alone condition should be assessed. The frequency measure of the functional analysis yielded data that suggest 2 maintaining contingencies for non-contextual speech, attention from others and task avoidance. The duration measure of the functional analysis yielded data that suggest 3 maintaining contingencies, attention from others, task avoidance, and automatic reinforcement. The functional analysis data from the Interactive Play condition and the Alone with Activities condition suggest that the frequency of the non-contextual speech is not maintained by automatic reinforcement and is not present in an interactive or control environment.

The duration data collected from the Alone with Activities condition does suggest that automatic reinforcement may be a maintaining contingency depending on the latency of the target behavior. Extreme variation in duration occurred during the Alone with Activities condition. The occurrence of the behavior during this condition was consistently low, however the duration measure was relatively, but inconsistently, high depending upon when Gavin first emitted the behavior during the condition. If he emitted the behavior during the first minute of the condition (session #7), the duration of the occurrence was high because he would not stop engaging in the behavior for the rest of the condition. Conversely, if he did not emit the behavior until the last minute of the condition the data resulted in a lower duration however, the end of the session and the experimenter coming into the room stopped the behavior. It is unclear how long Gavin would have engaged in the behavior once he started if he was not stopped by some other stimulus.
The functional assessment interview and direct observations for Malcom yielded results indicating the presence of both intelligible non-contextual speech and repetitive phonemic patterns during social activities and when Malcom was alone. The functional analysis yielded data that suggest that the presence of non-contextual speech in Malcom's behavioral repertoire may be maintained by multiple contingencies including social attention and automatic reinforcement. Four of the five conditions assessed resulted in similar data paths using frequency measures. Three of the five conditions assessed resulted in similar data paths using duration measures. The data suggest that task avoidance is not a maintaining contingency. These data suggest functional assessment yields data supporting two ideas: (1) Multiple contingencies do maintain the target behavior and (2) In the presence of multiple contingencies functional analysis data can suggest contingencies that do not maintain a behavior.

Like Malcom's non-contextual speech, James's non-contextual speech also consisted of both intelligible, non-contextual statements and consistent phonemic patterns. These statements and patterns were identified during the functional assessment interview. The data from the direct observations suggested that James engaged in the target behavior in a variety of environments including independent play and interactive play. Similarly, the functional analysis yielded data that suggest the non-contextual speech in James's behavioral repertoire may be maintained by multiple contingencies including automatic reinforcement and attention from others. The data suggest non-contextual speech is not maintained by task avoidance. The Redirection condition resulted in data that suggest that the frequency of the behavior is maintained by attention.
from others but the duration measure resulted in data that suggest that the form of the attention can punish the duration of the behavior (e.g., No more talking about Harry.)

The study yielded results suggesting benefits in participating in the full functional assessment. The first two steps of the functional assessment, interviews and direct observations, are used frequently in clinical treatment models. However, this study resulted in additional information by continuing in the process and finishing a functional analysis. Using the functional analysis step in the functional assessment procedure identified sometimes different or additional contingencies for each participant. This additional information could be used to develop more effective and time-saving interventions for the participants.

To what extent are interventions developed from the results of functional assessment effective in reducing the occurrences or duration of non-contextual speech?

Baseline data for Steven suggest that without intervention, the target behavior would continue to increase. The intervention that was implemented for Steven was based on the suggestion yielded by the result of the functional analysis; non-contextual speech was a function of social attention. The intervention used was extinction paired with differential reinforcement of other behaviors at a rate of 3 minutes. Based on the suggested maintaining contingency, the reinforcement was given in the form of social attention. Additionally, the rate was initially set at 3 minutes due to the frequency data during the functional analysis. The data suggested that Steven could engage in other behaviors without engaging in the target behavior for a period of 3 minutes.

The intervention yielded data suggesting the rate of 3 minutes was effective; however, anecdotal evidence from interviews with the parents and therapists regarding
the intervention during the majority of the day suggested that the 3-minute rate was too high for Steven to successfully access the reinforcement. Due to the anecdotal evidence, the rate was reduced to 1-minute and token reinforcement was added. To further reduce the behavior, information as to why Steven was or was not receiving the token and social reinforcement was paired with the 1-minute DRO.

Data suggest the intervention has been effective in reducing the target behavior. The data also suggest that the target behavior is still emitted at low levels of frequency and duration. The results of the functional analysis also suggest that implementing a training program to teach Steven how to gain social attention appropriately (e.g., “Hey mom, come look at this!”) may be an effective addition to the intervention to further reduce the target behavior.

Interventions should be developed and tested to further evaluate research question 2. For Gavin, an intervention using antecedents is suggested by the results of the functional analysis. Task avoidance and attention from others were suggested as the maintaining contingencies for Gavin’s non-contextual speech. Relevant interventions include increasing his repertoire of contextual speech, training requests for social attention, and to train requesting help or a break in the presence of a difficult task. Additionally, consequence-based interventions could include differential reinforcement other behaviors may be effective in reducing the target behavior. The functional analysis suggests that social attention would be an effective reinforcer.

With regard to Malcom, the functional analysis data suggest interventions training competing behaviors, such as listening to books on tape, to compete with the automatic reinforcement contingency. To address the social attention contingency the data suggest
training appropriate attention-seeking behaviors such as "Hey mom, come over here!"
Because the frequency and duration of target behavior is high across multiple
contingencies, it may be effective to implement a multicomponent intervention of
differential reinforcement of other behaviors and differential reinforcement of
incompatible behaviors and extinction. A sequential withdrawal of each component could
be used to evaluate the effectiveness of each component of the intervention
(de Zubicaray & Clair, 1998).

The functional analysis data suggest interventions to increase appropriate
contextual language such as play statements, "The car is going up the hill," and "Now it
will go down really fast!" Additionally, task avoidance does not seem to be a maintaining
contingency. Increasing Malcom's independent task ability may reduce the non-contextual speech maintained by automatic reinforcement that was found especially high
in the Alone conditions of the functional analysis.

4.3 Implications for Practice

Developing interventions for behaviors that have complex topographies can be
difficult and time consuming. Complex topographies and high rates of occurrence make it
necessary to go beyond the antecedent, behavior, consequence (A-B-C) analysis that is
used in many clinic settings. In clinic settings Functional Assessment may be a
timesaving technique that always for identification of the maintaining contingencies for
the behavior and contingencies that do not maintain the behavior.

This identification could allow for development of interventions that not only
serve the same function as the original behavior, but these interventions could be
designed using the contingencies that not only do not maintain the behavior but also
punish the behavior. Using the maintaining contingencies to develop the interventions may decrease the time it would take to reduce occurrence and duration of the target behavior. Additionally, these results would suggest interventions that would not be effective and would waste time.

Functional Assessment may also be a time consuming process. In an environment that has limited staff or limited facilities, the functional analysis of a target behavior may take longer than an intervention, based on interview and observation alone, would take to reduce the behavior. Severe behaviors evident in a limited environment may be too dangerous to analyze for a month. The severity of the behavior may dictate an immediate intervention. These factors should be taken into consideration when choosing to use functional assessment as a treatment model.

This study looked at to what extent functional assessment could yield data suggesting one or more maintaining contingencies for non-contextual speech. Non-contextual speech is a common aspect of speech by children with autism. This assessment method could be a fast (given enough staff) method to develop effective and timesaving interventions to reduce a target behavior in the clinic setting.

4.4 Future Research

4.4.1 Setting

This study took place entirely in the participant’s home. Systematic replication of this study could be done with different settings such as schools and clinics. Consideration should be given to implementing the conditions across settings. The direct observation of the behavior and the assessment interviews may indicate different settings in which to implement the assessment method as well as settings that it is not necessary to implement
the functional analysis portion of the process. Identifying settings other than the home to implement the functional assessment would support and further recommendations found in the literature (Ewing, Magee, & Ellis, 2001). The setting itself may be a maintaining contingency for the target behavior (e.g., the occurrence of non-contextual speech is much higher in all school conditions as compared to all home-based conditions).

4.4.2 Participants

Systematic replication of this study could be done with participants of different ages, both younger 2-5 years and older children 7-14 years. Additionally, this study should be replicated with female participants.

Research should be conducted regarding training parents to implement this assessment procedure. Questions such as “What is the effectiveness of parents as implementers of a such a procedure?” and “Can parents develop effective interventions based on the contingencies suggested in a functional assessment of behavior?” should be addressed. A comparison of parent implemented functional assessment and experimenter implemented functional assessment should also be researched.

4.4.3 Behaviors

Systematic replication of this study could be done was different repetitive and stereotypical behaviors such as immediate echolalia and hand flapping. Automatic reinforcement is most commonly labeled as the maintaining contingency for repetitive and stereotypical behaviors by children with autism. The results of this study, other literature, and perhaps future research may indicate that different or additional contingencies may be maintaining the repetitive behavior (McGonigle, 1987). If additional or different contingencies are indicated, function based interventions can be
developed that may prove to be more effective for reducing such repetitive speech. If an intervention is function-based, it may reduce the time needed to decrease the behavior giving more time for other behaviors to be increased or decreased.

4.4.4 Measurement Procedures

Frequency, duration and average duration measures were used to analyze non-contextual speech in this study. Future research should question the necessity of using all three measures. It may be equally effective to use only the duration measure, which encompasses both the frequency and average duration measures. In using the duration measure, it may also be effective to use an interval recording procedure.

4.4.5 Disorders

Systematic replication of this study could be done with students of different populations such as mental retardation and other developmental disabilities. Additionally, it would be useful to evaluate the effectiveness of functional assessment and function-based interventions in assessing a variety of language abilities of children with autism spectrum disorders. Additional research is also needed of non-verbal children who have the occurrence of repetitive phonemic patterns in their behavioral repertoire.

4.4.6 Conditions

Systematic replication of this study could be done with conditions lasting 3 minutes, 8 minutes, and 10 minutes. Additional conditions should be assessed such as access to tangible items and further assessment of the Alone condition. The Alone condition should be assessed for both children with autism and typical children. This comparison may suggest acceptable levels of non-contextual speech.
The literature also indicates the need to research increasing the functional analysis sessions (LaBelle & Charlop-Christy, 2002). Increasing the functional analysis sessions would assess for changing functions of the target behaviors.

4.5 Summary

This study consisted of two parts. The first phase of the study used functional assessment procedures to identify the maintaining contingencies of non-contextual speech in four children with autism. The first phase of the study consisted of three significant parts: interviews with the participant’s parent(s), direct observations of each participant in the home and therapy environments, and a functional analysis. During the functional analysis, the target behavior was assessed in environments differentiated by the contingencies (attention, task avoidance, and automatic reinforcement) in place. An alternating treatment design was used during the functional analysis phase. This design enabled direct comparison between the conditions including contingent attention, redirection, interactive play, alone with activities, escape, free play, tangible, and alone. Fractionation between the data paths demonstrates the differential effects of the independent variables.

For one participant, Steven, fractionation in the data paths suggested that social attention, or attention from others, was a maintaining contingency for non-contextual speech. The functional analysis for Gavin yielded results suggesting multiple maintaining contingencies of non-contextual speech including task avoidance and social attention. James and Malcom’s assessment results suggested multiple maintaining contingencies as well including automatic reinforcement. Additionally, contingencies were identified for James and Malcom that did not maintain the target behavior.
During the second phase of the study the research team use the results from the functional analysis to develop an intervention to reduce the occurrences and/or duration of the non-contextual speech for one participant.

Only Steven participated in Phase 2, the intervention phase of the study. This phase was implemented in an AB design. This design allowed for the application of the intervention to be in relation to the change that occurred in the behavior. The intervention consisted of differential reinforcement of other behaviors and token reinforcement. Data from the intervention suggest the intervention was effective in reducing both the frequency and duration of the target behavior, non-contextual speech.

The results of this study show that functional assessment may be an effective methodology to determine the maintaining contingencies of non-contextual speech by young children with autism. Evidence was also presented in support of the effectiveness of an intervention developed from the data of the functional analysis.
LIST OF REFERENCES


Individuals with Disabilities Education Act, 34 C.F.R., Part 300, 300.7 (1997).


APPENDIX A

Parent Information Letters and Consent Forms
January 10, 2003:

Dear Parent/Guardian,

My name is Corinne Murphy and I am currently a graduate student in Special Education at The Ohio State University. One of the requirements for completing my course of study is to conduct a research project. I will be conducting my research under the supervision of my faculty advisor, Dr. William L. Heward, a professor in the College of Education. I am writing to you to explain my research to you and to ask your permission to include your son/daughter in my study. Dr. Jacquie Wynn, Director of the Children's Hospital Autism Program has recommended you and your child for this study. The following is a description of the study I am planning to conduct and an explanation of your rights.

My study will use functional assessment to determine the purpose of delayed echolalia as displayed by some young children. For example, does your child use delayed echolalia to seek attention from others. The functional assessment will involve an interview with you, direct observation of your child, and assessment of the delayed echolalia. During assessment sessions conducted in your home, I will set up your child's room to determine whether attention, removal of work or being alone is the purpose of the behavior. Each session will last for 5 minutes, during which I will track the number of times delayed echolalia is present and how long each occurrence of delayed echolalia lasts. During the assessment of attention, your child can engage in any preferred activity. I will give your child praise and attention when delayed echolalia is present. During the assessment of removal of work, I will ask your child to perform a moderately difficult task. Each time delayed echolalia is present, I will remove the task for 10-15 seconds and then ask him/her to do the task again. During the assessment of being alone, I will observe your child in a room by himself to determine if delayed echolalia is present. Assessment sessions will be video and audio taped for the purposes of data collection only.

Before the study would begin, I would meet with you to discuss your child's language skills, things and activities he or she enjoys, and the kinds of situations in his or her life from which you would like delayed echolalia removed. Following the functional assessment, I would meet with you to discuss the results and the intervention that would be implemented as a follow-up to the assessment.
Parent/Guardian Information Letter
January 10, 2001
Page 2

Your son/daughter would be involved in the assessment for approximately 30-minutes, three to five days per week for approximately 2 weeks. You are not in any way obligated to grant permission for your child to participate in this research, and your child will not be penalized in any way for not participating. If your child does participate, you have the right to withdraw him/her from the study at any time without prejudice to you or your child. During any session, if your child asks to stop or shows signs of wanting to stop, the session will be terminated. Please be assured that your child's name will not be revealed in any publication, document, recording, computer storage or any other form of report or presentation developed from this research.

Attached are two copies of the assessment consent form. By signing this consent form you grant permission for your child to participate in the assessment part of this study. You should return a signed copy of the consent form in the stamped, return envelope and keep the second copy for your records. During the meeting to discuss the results of the assessment, I will provide you with 2 additional consent forms concerning the intervention phase of this study. At that time, you will not in any way be obligated to grant permission for your child to participate in this research, and your child will not be penalized in any way for not participating. If you have any questions regarding this research or your rights related to participation in this research, feel free to call me at home at (614) 309-3341 or call Dr. Heward at (614) 292-3348. Thank you for your cooperation.

Sincerely,

Corinne M. Murphy
M.A. Student

William L. Heward
Professor and Faculty Advisor
c. Jacquie Wynn, Ph.D
Director, Children's Hospital Autism Program

Enclosures: 2 copies of Consent Form for Participation in Educational Research
Self-addressed stamped envelope
Parent/Guardian Consent Form For Participation in Educational Research

I agree to allow my child to participate in a research study evaluating the effects of social praise on delayed echolalia. Ms. Corinne Murphy will conduct this study under the direction of Dr. William L. Heward. The nature and purpose of this study have been explained to me, and I understand that instructional sessions will require approximately 30 minutes, five to seven times per week for approximately 12 weeks.

I also grant permission to Ms. Murphy and Dr. Heward to video and audio tape the research sessions for data collection purposes and to obtain test scores and other information from the Children's Hospital Autism Program to describe my child's disability and current level of functioning for the purpose of writing the research report. I understand my child's and my own identity will not be revealed to anyone not directly involved in conducting the research, or by means of publication, documentation, computer storage, or any other form of report developed from this research. Additionally, I understand I may withdraw my consent for participation at any time.

Child's Name

Signature of Parent or Guardian ________________________________ Date __________

Corinne M. Murphy
M.A. Student Researcher

Date __________

William L. Heward
Professor and Faculty Advisor

Date __________
I agree to allow my child to participate in a research study using functional analysis to evaluate delayed echolalia under attention-seeking, task-avoiding, tangible and alone conditions. Ms. Corinne Murphy will conduct this study under the direction of Dr. William L. Heward. The nature and purpose of this study have been explained to me, and I understand that assessment sessions will require approximately 30 minutes, three to five times per week for approximately 2 weeks.

I also grant permission to Ms. Murphy and Dr. Heward to video and audio tape the research sessions for data collection purposes and to obtain test scores and other information from the Children’s Hospital Autism Program to describe my child’s disability and current level of functioning for the purpose of writing the research report. I understand my child’s and my own identity will not be revealed to anyone not directly involved in conducting the research, or by means of publication, documentation, computer storage, or any other form of report developed from this research. Additionally, I understand I may withdraw my consent for participation at any time.

Child’s Name

Signature of Parent or Guardian

Date

Corinne M. Murphy
M.A. Student Researcher

Date

William L. Heward
Professor and Faculty Advisor

Date
CHILDREN'S RESEARCH INSTITUTE
Columbus, Ohio 43205

INFORMED CONSENT TO PARTICIPATE IN BEHAVIORAL RESEARCH

YOU ARE BEING ASKED TO VOLUNTEER FOR A STUDY

PARTICIPANT'S LEGAL NAME: ___________________  DATE OF BIRTH: ________


THE PERSON IN CHARGE OF THIS STUDY IS: Jacquie Wynn, PhD and Corinne M. Murphy

INTRODUCTION

We invite you/your child to take part in a research study being conducted at Children's Hospital, Columbus, OH. It is important that you read and understand several general principles that apply to all who take part in this research study: (a) taking part in this study is entirely voluntary; (b) you/your child may not benefit directly as a result of taking part in this study, but knowledge may be gained that might benefit others; (c) you/your child are free to withdraw from the study at any time without affecting on-going or future care; (d) leaving the study will not cause a penalty or loss of any benefits to which you are otherwise entitled.

Before you/your child volunteer to take part in this research, the study must be explained to you, and you/your child must be given a chance to ask questions. You should discuss anything that you do not understand with the staff member who is explaining it to you before you agree to volunteer. Once all of your questions have been answered, you must sign this consent form. This gives us your permission for you/your child to participate. If your child is age nine (9) or older, s/he should also give assent before s/he will be considered as a volunteer. You will be given a copy of the signed consent form to take home with you.

The nature of the study, the risks, inconveniences, discomforts, and other important information about the study are discussed below.

1) WHY ARE WE DOING THIS RESEARCH STUDY?
This study will be done in partial fulfillment of an M.A. degree at The Ohio State University. Corinne Murphy will be conducting this study under the supervision of Jacquie Wynn, PhD, Director of the Children's Hospital Autism Center, and William Heward, PhD, professor and advisor at The Ohio State University. A brief description of the purpose of the study follows.

Children diagnosed with autism often exhibit a variety of language problems, including what is called echolalia or the use of words or phrases that are out of context. These utterances consist in two forms, nonsensical sounds, or words or phrases that are repeated seemingly without purpose. These repeated phrases are often termed delayed echolalia. Through our research we hope to identify an assessment technique that will help develop interventions that are effective in reducing delayed echolalia.

2) HOW LONG WILL YOU/YOUR CHILD'S PARTICIPATION IN THIS STUDY LAST?
Your child will be in the first phase (functional analysis) of the study for approximately 1 hour per day for 5 consecutive days. This hour of participation will be broken up into five-minute segments. Three to four segments will take place January 23, 2003
INFORMED CONSENT TO PARTICIPATE IN BEHAVIORAL RESEARCH

TITLE OF THE STUDY: Functional Assessment: An Effective Analysis for Identifying the Maintaining Contingencies of Delayed Echolalia in Children with Autism

during each three-hour session of your child's ongoing intensive Behavioral Intervention (IBI) therapy. These segments will not occur back to back, they will be presented throughout the session. During each segment, the trainer will react differently to delayed echolalia that the trainer observes. These reactions include praising the behavior, ignoring the behavior, allowing escape from the task the trainer has presented, and a segment that does not involve any reaction. You will participate in the functional analysis by completing an interview with the trainer that will last approximately 1 hour.

The intervention phase of the study will consist of 0.5-1 hour per day, 5-6 days a week as part of ongoing IBI treatment sessions. The intervention phase will last between 6-12 weeks. The length of the intervention phase will be dependent upon the effect of the intervention on the delayed echolalia. If the behavior stops after 6 weeks of intervention, the intervention will be ended. If the behavior decreases slowly over the course of 6 weeks, the intervention will continue until the behavior disappears or the study has ended. The intervention may continue if you and your case supervisor agree that it is in the best interest of your child to continue the intervention after the study.

3) WHERE WILL THE STUDY BE DONE?

This study is being done in your home and about 6 people will be involved (Jacquie Wynn, PhD, Corinne Murphy, and the in-home therapists on your child's team at the time).

4) WHAT WILL HAPPEN DURING THE STUDY?

During the first phase of the study an assessment will be conducted to determine the reason the echolalia is occurring. This assessment is called a functional analysis. The trainer will use three different situations to determine whether attention, removal of work or being alone is the purpose of the behavior. Each session will last for 5 minutes, during which the trainer will track the number of times delayed echolalia is present and how long each occurrence of delayed echolalia lasts. During the assessment of attention, your child can engage in any preferred activity. The trainer will give your child praise and attention when delayed echolalia is present. During the assessment of removal of work, the trainer will ask your child to perform a moderately difficult task. Each time-delayed echolalia is present, The trainer will remove the task for 10-15 seconds and then ask him/her to do the task again. During the assessment of being alone, the trainer will observe your child in a room by himself to determine if delayed echolalia is present. All sessions will be video and audiotaped for data collection purposes only. The trainer will analyze these tapes at a later date to determine in which situations the behaviors increase thus determining the cause of the delayed echolalia.

During the second phase of the study an intervention will be conducted to try to reduce the delayed echolalia. The intervention will be developed based on the cause of the delayed echolalia that was determined from the functional analysis. This intervention will be set up much like the programs already in your child's IBI therapy. Possible interventions include ignoring the behavior, redirecting the behavior, or preventing the behavior. The intervention will be used each time the behavior is present throughout your child's therapy session. Portions of these sessions will be

January 23, 2003

Parent Initials
TITLE OF THE STUDY: Functional Assessment: An Effective Analysis for Identifying the Maintaining Contingencies of Delayed Echolalia in Children with Autism

video and audio taped for data collection purposes only. The trainer will use the data to make adjustments to the procedure for the intervention.

5) THE FOLLOWING PROCEDURES BEING USED FOR THIS STUDY ARE EXPERIMENTAL:

All procedures used in this study have been previously researched and are widely used in the clinic settings. However, the use of these assessment and interventions for delayed echolalia is experimental.

6) WHAT ARE THE POSSIBLE RISKS OF BEING IN THIS STUDY?

Possible risks include a temporary increase in the delayed echolalia during the assessment sessions due to the changes the trainer will make in the environment. The behaviors will most likely decrease once the particular change in the environment has ended and the environment is typical. However there is a possibility of the increase lasting for a longer period of time. Although a very minimal risk to programs, the time taken away from programs may reduce progress in those programs. There will also be time given to the parent interview. The study may cause shift inconveniences in scheduling. Also, it is possible that the intervention may simply not work or serve to increase the behavior.

There also may be risks or side effects that are currently unknown.

7) WHAT ARE THE POSSIBLE BENEFITS OF PARTICIPATING?

Possible benefits for your child include decreasing delayed echolalia, which in turn may lead to improved social relations with peers, teachers, therapists, and family members. Other benefits include expanding the knowledge about delayed echolalia for clinicians to be able to use to help other children. It is also possible that there will be no benefit from this study.

8) WHAT WILL HAPPEN IF NEW INFORMATION IS LEARNED WHILE THE STUDY IS ONGOING?

If there are important new findings during the study that might affect your willingness to continue to participate, you will be notified by the investigator.

9) WHAT WILL HAPPEN IF YOU/YOUR CHILD DECIDE(S) NOT TO CONTINUE IN THIS STUDY?

Participation in this study is voluntary. You/your child may not agree to take part in or stop taking part in this study at any time. If you/your child choose not to participate, there will be no effect on the clinical services you are receiving through Children’s Hospital IBI Clinic. If you/your child agree to participate, you may stop participating at any time during the study and there will be no negative effect on the clinical services your child is currently receiving.

January 23, 2003

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INFORMED CONSENT TO PARTICIPATE IN BEHAVIORAL RESEARCH

TITLE OF THE STUDY: Functional Assessment: An Effective Analysis for Identifying the Maintaining Contingencies of Delayed Echolalia in Children with Autism

The doctor and/or study sponsor may stop you/your child from participating in this study at any time if they decide that it is in your/your child's best interest to do so. They may also do this if you do not follow the study instructions or for other reasons. If you/your child have other medical problems the study doctor or the sponsor will decide if you may continue in the research study.

10) WILL THERE BE ANY ADDITIONAL COSTS TO YOU OR THE THIRD PARTY PAYER (INSURANCE COMPANY) FOR PARTICIPATING IN THIS STUDY?
There will be no additional costs for you or the third party payer (insurance company).

11) WHAT HAPPENS IF YOU/YOUR CHILD BECOME(S) UPSET/INJURED FROM THE STUDY PROCEDURES?
In the event of a study-related injury, immediate treatment is available at Children's Hospital. Costs of such treatment may be at your expense and financial compensation may not be available. For further explanation and for any questions concerning your legal rights, contact the Legal Services Office at (614) 722-3940. This does not, however, mean that you give up any of your rights under state or federal laws to seek compensation.

If you have questions or concerns about your rights as a research volunteer, please call (614) 722-2874, Children's Hospital, Office of Research Services. A member of the Children's Hospital Institutional Review Board for research involving human subjects will be glad to assist you.

12) HOW WILL THE INFORMATION COLLECTED BE KEPT CONFIDENTIAL?
Information collected for this study is confidential. Video and audiotapes will also be kept confidential. These tapes and all other study materials will be kept in a locked filing cabinet. Videotapes will be maintained indefinitely in the secured and confidential storage of Children's Hospital IBI Clinic. Access to these materials will be limited to Senior Staff of Children's Hospital IBI Clinic, and the Children's Hospital Institutional Review Board (IRB). Data collected and entered into the Case Report Forms are the property of Children's Hospital Autism Center. In the event of any publication regarding this study, your identity will not be disclosed.

January 23, 2003

__________________________
Parent Initials
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TITLE OF THE STUDY: Functional Assessment: An Effective Analysis for Identifying the Maintaining Contingencies of Delayed Echolalia in Children with Autism

VOLUNTEER'S STATEMENT

I/my child have been given a chance to ask questions about this research study. These questions have been answered to our satisfaction. If I have more questions about my participation in this study or research related injury, I may contact the Study Director Jacque Wynn, PhD at (614)866-3473.

I have read the above information. I agree/my child agrees to participate in this study. I also will be given a copy of this consent form with all the signatures for my own records.

CONSENT SIGNATURES

A. Adult Guardian’s Consent
I have read the explanation and have been given the opportunity to discuss it and to ask questions. I hereby consent to take part in this study.

Signature of Adult Guardians & Date Signed

B. Parent’s Permission for Minor Patient
I have read the explanation and have been given the opportunity to discuss it and to ask questions. I hereby give permission for my child to take part in this study.

Signature of Parent(s)/Guardian & Date Signed

C. Child’s Assent (if appropriate)
The information in the above consent form has been read and explained to me and I understand it. I agree to participate in this study.

Child's Signature & Date Signed

D. Person Obtaining Consent
I certify that I have explained the research, its purposes, and the procedures to the patient or his/her legal representative before requesting their signature.

Signature of Person Obtaining Consent & Date Signed

Signature of Investigator & Date Signed

Signature of Witness & Date Signed

January 23, 2003

Parent Initials
APPENDIX B

Functional Analysis Data Sheet
<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Behavior</th>
<th>Duration</th>
<th>Condition</th>
<th>Consequence</th>
<th>Other Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>_S to _S=</td>
<td>A D T</td>
<td>0+ 0- FP</td>
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<td>_S to _S=</td>
<td>A D T</td>
<td>0+ 0- FP</td>
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<td>_S to _S=</td>
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<td>_S to _S=</td>
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<td>_S to _S=</td>
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<td>A D T</td>
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<td>_S to _S=</td>
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<td>0+ 0- FP</td>
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<td>_S to _S=</td>
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<td>0+ 0- FP</td>
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<td>_S to _S=</td>
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<td>0+ 0- FP</td>
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</table>
APPENDIX C

Treatment Integrity Checklist
<table>
<thead>
<tr>
<th>Minute</th>
<th>Behavior Observed (y/n)</th>
<th>Extinction</th>
<th>DRO</th>
<th>Token Reinforcement</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
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<tr>
<td>Minute</td>
<td>Behavior Observed (y/n)</td>
<td>Extinction</td>
<td>DRO</td>
<td>Token Reinforcement</td>
<td>Correction</td>
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</tbody>
</table>
APPENDIX D

Social Validity Questionnaire
The goal of reduction in the target behavior is an age-appropriate expectation.

A decrease in the target behavior will improve the quality of life for the participant.

The level of the target behavior at the start of the study affected the participant’s level of social acceptance.

Reduction of the target skill was a practical goal of the intervention.

The intervention was costly in terms of time.

The intervention was costly in terms of money.

The participant better off now that the behavior has been reduced.

Reduction in behavior will lead to more availability of reinforcement for the participant now or in the future.

Through this study, you learned how to promote increased positive interactions with the participant.

Given the opportunity, you would participate in this study again.
APPENDIX E

The Functional Assessment Interview Form (O’Neill et al., 1997)
A. DESCRIBE THE BEHAVIORS.

1. For each of the behaviors of concern, define the topography (how it is performed), frequency (how often it occurs per day, week, or month), duration (how long it lasts when it occurs), and intensity (how damaging or destructive the behaviors are when they occur).

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Topography</th>
<th>Frequency</th>
<th>Duration</th>
<th>Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Kick the examiner</td>
<td>Often</td>
<td>Short</td>
<td>Audible</td>
</tr>
<tr>
<td>b.</td>
<td>Nuisance conversations</td>
<td>Often</td>
<td>Not usually</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>Pretends or acts like</td>
<td>Rare</td>
<td>Long</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>Video tape almost every night</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td>Does the explorer for day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f.</td>
<td>Break the after hour</td>
<td></td>
<td></td>
<td>Audible</td>
</tr>
</tbody>
</table>

2. Which of the behaviors described above are likely to occur together in some way? Do they occur about the same time? In some kind of predictable sequence or "chain"? In response to the same type of situation?
B. DEFINE ECOLOGICAL EVENTS (SETTING EVENTS) THAT PREDICT OR SET UP THE PROBLEM BEHAVIORS

1. What medications is the person taking (if any), and how do you believe these may affect his or her behavior?

2. What medical or physical conditions (if any) does the person experience that may affect his or her behavior (e.g., asthma, allergies, rashes, sinus infections, seizures, problems related to menstruation)?

3. Describe the sleep patterns of the individual and the extent to which these patterns may affect his or her behavior.

4. Describe the eating routines and diet of the person and the extent to which these may affect his or her behavior.

5a. Briefly list below the person's typical daily schedule of activities. (Check the boxes by those activities the person enjoys and those activities most associated with problems.)

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Enjoyed</th>
<th>Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00</td>
<td>Breakfast</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7:00</td>
<td>Breakfast</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8:00</td>
<td>Breakfast</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>9:00</td>
<td>Breakfast</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>10:00</td>
<td>Breakfast</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>11:00</td>
<td>Breakfast</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>12:00</td>
<td>Breakfast</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>1:00</td>
<td>Breakfast</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2:00</td>
<td>Lunch</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3:00</td>
<td>Lunch</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>4:00</td>
<td>Lunch</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5:00</td>
<td>Lunch</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6:00</td>
<td>Lunch</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7:00</td>
<td>Dinner</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8:00</td>
<td>Dinner</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>9:00</td>
<td>Dinner</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
5b. To what extent are the activities on the daily schedule predictable for the person, with regard to what will be happening, when it will occur, with whom, and for how long?

5c. To what extent does the person have the opportunity during the day to make choices about his or her activities and reinforcing events? (e.g., food, clothing, social companions, leisure activities)

6. How many other persons are typically around the individual at home, school, or work (including staff, classmates, and housemates)? Does the person typically seem bothered in situations that are more crowded and noisy?

C. DEFINE SPECIFIC IMMEDIATE ANTECEDENT EVENTS THAT PREDICT WHEN THE BEHAVIORS ARE LIKELY AND NOT LIKELY TO OCCUR

1. Times of Day: When are the behaviors most and least likely to happen?

   Most likely: ____________

   Least likely: ____________
2. **Settings:** Where are the behaviors most and least likely to happen?
   - Most likely:
   - Least likely:

3. **People:** With whom are the behaviors most and least likely to happen?
   - Most likely: family, teachers, students
   - Least likely:

4. **Activity:** What activities are most and least likely to produce the behaviors?
   - Most likely: difficult tasks
   - Least likely:

5. Are there particular or idiosyncratic situations or events not listed above that sometimes seem to "set off" the behaviors, such as particular demands, noises, lights, clothing?
   - hair braids, new people

6. What **one thing** could you do that would most likely make the undesirable behaviors occur?
   - put in a room full of new people who desire

7. Briefly describe how the person's behavior would be affected if...
   a. You asked him or her to perform a difficult task.
   - talk
   b. You interrupted a desired activity, such as eating ice cream or watching TV.
   - no affect
   c. You unexpectedly changed his or her typical routine or schedule of activities.
   - talk
d. She or he wanted something but wasn't able to get it (e.g., a food item up on a shelf).

e. You didn't pay attention to the person or left her or him alone for a while (e.g., 15 minutes).


1. Think of each of the behaviors listed in Section A, and try to identify the specific consequences or outcomes the person gets when the behaviors occur in different situations.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Particular situations</th>
<th>What exactly does he or she get?</th>
<th>What exactly does he or she avoid?</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. running away</td>
<td>seeking attention</td>
<td>avoidance of attention</td>
<td></td>
</tr>
<tr>
<td>b. voice talk</td>
<td>alone</td>
<td>1 alone</td>
<td>1 alone</td>
</tr>
<tr>
<td>c. voice talk</td>
<td>in car</td>
<td>attention from parent</td>
<td></td>
</tr>
<tr>
<td>d. voice talk</td>
<td>when</td>
<td>attention</td>
<td>frequent conversation</td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>f.</td>
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<tr>
<td>g.</td>
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<tr>
<td>h.</td>
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<td></td>
<td></td>
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<tr>
<td>i.</td>
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</tbody>
</table>

E. CONSIDER THE OVERALL EFFICIENCY OF THE PROBLEM BEHAVIORS. EFFICIENCY IS THE COMBINED RESULT OF (A) HOW MUCH PHYSICAL EFFORT IS REQUIRED, (B) HOW OFTEN THE BEHAVIOR IS PERFORMED BEFORE IT IS REWARDED, AND (C) HOW LONG THE PERSON MUST WAIT TO GET THE REWARD.

<table>
<thead>
<tr>
<th>Low Efficiency</th>
<th>High Efficiency</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
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<td>6</td>
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</tbody>
</table>
F. WHAT FUNCTIONAL ALTERNATIVE BEHAVIORS DOES THE PERSON ALREADY KNOW HOW TO DO?

1. What socially appropriate behaviors or skills can the person already perform that may generate the same outcomes or reinforcers produced by the problem behaviors?

G. WHAT ARE THE PRIMARY WAYS THE PERSON COMMUNICATES WITH OTHER PEOPLE?

1. What are the general expressive communication strategies used by or available to the person? These might include vocal speech, signs/patterns, communication boards/books, or electronic devices. How consistently are the strategies used?

2. On the following chart, indicate the behaviors the person uses to achieve the communicative outcomes listed:

<table>
<thead>
<tr>
<th>communicative functions</th>
<th>complex speech (sentences)</th>
<th>multiple-word phrases</th>
<th>one-word utterances</th>
<th>echolalia</th>
<th>other vocality (saying words)</th>
<th>complex signing</th>
<th>pointing</th>
<th>shaking head</th>
<th>grabbing objects</th>
<th>increased movement</th>
<th>moving close to you</th>
<th>moves away or leaves</th>
<th>facial expression</th>
<th>aggression</th>
<th>sadness</th>
<th>other</th>
</tr>
</thead>
<tbody>
<tr>
<td>request attention</td>
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<td>request help</td>
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<tr>
<td>request preferred food/objects/activities</td>
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<td>request break</td>
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<td>show you something or some place</td>
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<td>indicate physical pain (headache, illness)</td>
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<tr>
<td>indicate confusion or unhappiness</td>
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<tr>
<td>protest or reject a situation or activity</td>
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</tbody>
</table>
5. With regard to the person's receptive communication, or ability to understand other persons...
   
a. Does the person follow spoken requests or instructions? If so, approximately how many?
   (List if only a few.)
   
   
   
   b. Does the person respond to signed or gestural requests or instructions? If so, approximately how many?
   (List if only a few.)
   
   
   c. Is the person able to imitate if you provide physical models for various tasks or activities?
   (List if only a few.)
   
   d. How does the person typically indicate yes or no when asked if she or he wants something, wants to go somewhere, and so on?

H WHAT ARE THINGS YOU SHOULD DO AND THINGS YOU SHOULD AVOID IN WORKING WITH AND SUPPORTING THIS PERSON?

1. What things can you do to improve the likelihood that a teaching session or other activity will go well with this person?
   
   
   

2. What things should you avoid that might interfere with or disrupt a teaching session or activity with this person?

I WHAT ARE THINGS THE PERSON LIKES AND ARE REINFORCING FOR HIM OR HER?

1. Food items:
   
   
   


2. Toys and objects: [Blank]

3. Activities at home: [Blank]

4. Activities/outings in the community: [Blank]

5. Other: [Blank]

J. WHAT DO YOU KNOW ABOUT THE HISTORY OF THE UNDESIRABLE BEHAVIORS, THE PROGRAMS THAT HAVE BEEN ATTEMPTED TO DECREASE OR ELIMINATE THEM, AND THE EFFECTS OF THOSE PROGRAMS?

<table>
<thead>
<tr>
<th>Behavior</th>
<th>How long has this been a problem?</th>
<th>Programs</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bright talk</td>
<td>a few years</td>
<td>No more talk</td>
<td>Put some effort</td>
</tr>
<tr>
<td>2. More talk</td>
<td></td>
<td>No more talk</td>
<td>Put behavior</td>
</tr>
<tr>
<td>3. Loud talk</td>
<td></td>
<td>Redirection</td>
<td>Good</td>
</tr>
<tr>
<td>4. Silent</td>
<td></td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>5. Versatile</td>
<td></td>
<td></td>
<td>Sentence start</td>
</tr>
<tr>
<td>6. Inattentive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Disruptive</td>
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<td>8. Overactive</td>
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<td>9. Hyperactive</td>
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FUNCTIONAL ASSESSMENT INTERVIEW (FAI)

Person of concern ___________________________ Age __________ Sex (M F)
Date of interview __________________________ Interviewer __________________________
Respondents __________________________

A. DESCRIBE THE BEHAVIORS.
1. For each of the behaviors of concern, define the topography (how it is performed), frequency (how often it occurs per day, week, or month), duration (how long it lasts when it occurs), and intensity (how damaging or destructive the behaviors are when they occur).

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Topography</th>
<th>Frequency</th>
<th>Duration</th>
<th>Intensity</th>
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2. Which of the behaviors described above are likely to occur together in some way? Do they occur about the same time? In some kind of predictable sequence or “chain”? In response to the same type of situation?

Chains seem to be from one source, and not change ever often
B. DEFINE ECOLOGICAL EVENTS (SETTING EVENTS) THAT PREDICT OR SET UP THE PROBLEM BEHAVIORS

1. What medications is the person taking (if any), and how do you believe these may affect his or her behavior?


2. What medical or physical conditions (if any) does the person experience that may affect his or her behavior (e.g., asthma, allergies, rashes, sinus infections, seizures, problems related to menstruation)?


3. Describe the sleep patterns of the individual and the extent to which these patterns may affect his or her behavior.


4. Describe the eating routines and diet of the person and the extent to which these may affect his or her behavior.


5a. Briefly list below the person's typical daily schedule of activities. (Check the boxes by those activities the person enjoys and those activities most associated with problems.)

<table>
<thead>
<tr>
<th>Enjoys</th>
<th>Problems</th>
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6:00
8:00
9:00

109
5b. To what extent are the activities on the daily schedule predictable for the person, with regard to what will be happening, when it will occur, with whom, and for how long?

6. How many other persons are typically around the individual at home, school, or work (including staff, classmates, and housemates)? Does the person typically seem bothered in situations that are more crowded and noisy?

7. What is the pattern of staffing support that the person receives in home, school, work, and other settings (e.g., 1:1, 2:1)? Do you believe that the number of staff, the training of staff, or their social interactions with the person affect the problem behaviors?

C. DEFINE SPECIFIC IMMEDIATE ANTECEDENT EVENTS THAT PREDICT WHEN THE BEHAVIORS ARE LIKELY AND NOT LIKELY TO OCCUR.

1. Times of Day: When are the behaviors most and least likely to happen?

   Most likely: 

   Least likely:
2. Settings: Where are the behaviors most and least likely to happen?

Most likely: backyard, family, car, home, it

Least likely: school, home, classroom, you added

3. People: With whom are the behaviors most and least likely to happen?

Most likely: mother, sister, brother, anyone familiar

Least likely: stranger

4. Activity: What activities are most and least likely to produce the behaviors?

Most likely: getting ready for bed

Least likely:

5. Are there particular or idiosyncratic situations or events not listed above that sometimes seem to "set off" the behaviors, such as particular demands, noise, lights, clothing?

"Sometimes looks like all activity"

6. What one thing could you do that would most likely make the undesirable behaviors occur?

leave him alone

7. Briefly describe how the person's behavior would be affected if...

a. You asked him or her to perform a difficult task.

You asked him or her to perform a difficult task.

b. You interrupted a desired activity, such as eating ice cream or watching TV.

"No" when asked to watch TV

c. You unexpectedly changed his or her typical routine or schedule of activities.

some amount of talk
D. IDENTIFY THE CONSEQUENCES OR OUTCOMES OF THE PROBLEM BEHAVIORS THAT MAY BE MAINTAINING THEM (I.E., THE FUNCTIONS THEY SERVE FOR THE PERSON IN PARTICULAR SITUATIONS)

1. Think of each of the behaviors listed in Section A, and try to identify the specific consequences or outcomes the person gets when the behaviors occur in different situations.

| Behavior | Particular situations | What exactly does he or she pet | What exactly does he or she avoid?
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E. CONSIDER THE OVERALL EFFICIENCY OF THE PROBLEM BEHAVIORS. EFFICIENCY IS THE COMBINED RESULT OF (A) HOW MUCH PHYSICAL EFFORT IS REQUIRED, (B) HOW OFTEN THE BEHAVIOR IS PERFORMED BEFORE IT IS REWARDED, AND (C) HOW LONG THE PERSON MUST WAIT TO GET THE REWARD.

<table>
<thead>
<tr>
<th>Low Efficiency</th>
<th>High Efficiency</th>
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<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
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</table>
F. WHAT FUNCTIONAL ALTERNATIVE BEHAVIORS DOES THE PERSON ALREADY KNOW HOW TO DO?

1. What socially appropriate behaviors or skills can the person already perform that may generate the same outcomes or reinforcers produced by the problem behaviors?

G. WHAT ARE THE PRIMARY WAYS THE PERSON COMMUNICATES WITH OTHER PEOPLE?

1. What are the general expressive communication strategies used by or available to the person? These might include vocal speech, signs/palms, communication boards/tables, or electronic devices. How consistently are the strategies used?

2. On the following chart, indicate the behaviors the person uses to achieve the communicative outcomes listed:

| Communicative Functions | Complex speech (sentences) | Multiple-word phrases | One-word utterances | Echo babbling | Other vocalizing | Single signing | Pointing | Leaning | Grasping/Reaching | Giving objects | Increased movement | Moves close to you | Moves away from you | Fixed gaze | Facial expression | Aggression | Self-injury | Other |
|-------------------------|-----------------------------|----------------------|---------------------|---------------|-----------------|---------------|---------|--------|----------------|----------------|------------------|----------------|------------------|-----------|-----------|-------|
| Request attention       |                             |                      |                     |               |                 |               |         |        |                |                |                  |                |                  |           |           |       |
| Request help            |                             |                      |                     |               |                 |               |         |        |                |                |                  |                |                  |           |           |       |
| Request preferred food/objects/activities | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Request break           | ✓                           |                      |                     |               |                 |               |         |        |                |                |                  |                |                  |           |           |       |
| Show you something or some place | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Indicate physical pain (headache, illness) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Indicate confusion or unhappiness | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Protest or reject a situation or activity | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
3. With regard to the person's receptive communication, or ability to understand other persons...
   a. Does the person follow spoken requests or instructions? If so, approximately how many?
      (List if only a few.)
      __________________________________________________________
      __________________________________________________________

   b. Does the person respond to signed or gestural requests or instructions? If so, approximately how many?
      (List if only a few.)
      __________________________________________________________
      __________________________________________________________

   c. Is the person able to imitate if you provide physical models for various tasks or activities? (List if only a few.)
      __________________________________________________________
      __________________________________________________________

   d. How does the person typically indicate yes or no when asked if she or he wants something, wants to go somewhere, and so on?
      __________________________________________________________
      __________________________________________________________

H. WHAT ARE THINGS YOU SHOULD DO AND THINGS YOU SHOULD AVOID IN WORKING WITH AND SUPPORTING THIS PERSON?

1. What things can you do to improve the likelihood that a teaching session or other activity will go well with this person?
   __________________________________________________________
   __________________________________________________________

2. What things should you avoid that might interfere with or disrupt a teaching session or activity with this person?
   __________________________________________________________
   __________________________________________________________

I. WHAT ARE THINGS THE PERSON LIKES AND ARE REINFORCING FOR HIM OR HER?

1. Food items: __________________________________________________________
2. Toys and objects: ____________________________

3. Activities at home: ____________________________

4. Activities/outings in the community: ____________________________

5. Other: ____________________________

J. WHAT DO YOU KNOW ABOUT THE HISTORY OF THE UNDESIRABLE BEHAVIORS, THE PROGRAMS THAT HAVE BEEN ATTEMPTED TO DECREASE OR ELIMINATE THEM, AND THE EFFECTS OF THOSE PROGRAMS?

<table>
<thead>
<tr>
<th>Behavior</th>
<th>How long has this been a problem?</th>
<th>Programs</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. specified</td>
<td>Verbal command, reward, sort</td>
<td>stops behavior</td>
<td>stops behavior</td>
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<tr>
<td>2. continuous rules</td>
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<td>for 2-3 weeks</td>
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<td>3. interrupted</td>
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<td>therapy will begin</td>
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<td>4.</td>
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<td>again</td>
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<td>5.</td>
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</table>
A. DESCRIBE THE BEHAVIORS

1. For each of the behaviors of concern, define the topography (how it is performed), frequency (how often it occurs per day, week, or month), duration (how long it lasts when it occurs), and intensity (how damaging or destructive the behaviors are when they occur).

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<th>Behavior</th>
<th>Topography</th>
<th>Frequency</th>
<th>Duration</th>
<th>Intensity</th>
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<td>a. keep scanner</td>
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<td>b. previous conversation</td>
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<td>c. constant pacing</td>
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<td>d. reports occur more</td>
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<td>e. regular behavior</td>
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<td>f. in reduction</td>
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<td>g. to aggressive people</td>
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</table>

2. Which of the behaviors described above are likely to occur together in some way? Do they occur about the same time? In some kind of predictable sequence or "chain"? In response to the same type of situation?

No change in pattern unless environment changes
B. DEFINE ECOLOGICAL EVENTS (SETTING EVENTS) THAT PREDICT OR SET UP THE PROBLEM BEHAVIORS

1. What medications is the person taking (if any), and how do you believe these may affect his or her behavior?

   Teacher for Science
   Increased anxiety when asked an asked

2. What medical or physical conditions (if any) does the person experience that may affect his or her behavior (e.g., asthma, allergies, rashes, sinus infections, seizures, problems related to menstruation)?

   Asthma
   High blood pressure
   Low blood pressure
   Little effect on behavior

3. Describe the sleep patterns of the individual and the extent to which these patterns may affect his or her behavior.

   Less sleep = Abnormal behavior
   Sleeps from 10 pm - 7 am
   Changes sleep patterns at night

4. Describe the eating routines and diet of the person and the extent to which these may affect his or her behavior.

   Self-restricted diet, eats mostly eggs, meat
   Mostly eats bread-based diet, no rice
   Effects sleeping patterns, no violent behavior

5a. Briefly list below the person's typical daily schedule of activities. (Check the boxes by those activities the person enjoys and those activities most associated with problems.)

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<thead>
<tr>
<th>Enjoys</th>
<th>Problems</th>
<th>Enjoys</th>
<th>Problems</th>
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<td>school</td>
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<td>1:00</td>
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117
5b. To what extent are the activities on the daily schedule predictable for the person, with regard to what will be happening, when it will occur, with whom, and for how long?

5c. To what extent does the person have the opportunity during the day to make choices about his or her activities and reinforcing events? (e.g., food, clothing, social companions, leisure activities)

6. How many other persons are typically around the individual at home, school, or work (including staff, classmates, and housemates)? Does the person typically seem bothered in situations that are more crowded and noisy?

7. What is the pattern of staffing support that the person receives in home, school, work, and other settings (e.g., 1:1, 2:1)? Do you believe that the number of staff, the training of staff, or their social interactions with the person affect the problem behaviors?

C. DEFINE SPECIFIC IMMEDIATE ANTECEDENT EVENTS THAT PREDICT WHEN THE BEHAVIORS ARE LIKELY AND NOT LIKELY TO OCCUR.

1. Times of Day: When are the behaviors most and least likely to happen?

   Most likely: ____________

   Least likely: ____________

118
2. **Settings:** Where are the behaviors most and least likely to happen?
   
   **Most likely:**
   
   **Least likely:**

3. **People:** With whom are the behaviors most and least likely to happen?
   
   **Most likely:**
   
   **Least likely:**

4. **Activity:** What activities are most and least likely to produce the behaviors?
   
   **Most likely:**
   
   **Least likely:**

5. Are there particular or idiosyncratic situations or events not listed above that sometimes seem to "set off" the behaviors, such as particular demands, noises, lights, clothing?

6. What one thing could you do that would most likely make the undesirable behaviors occur?

7. Briefly describe how the person's behavior would be affected if...
   a. You asked him or her to perform a difficult task.
   
   **More likely get refusal or upset**

   b. You interrupted a desired activity, such as eating ice cream or watching TV.
   
   **Will say 'No!'**

   c. You unexpectedly changed his or her typical routine or schedule of activities.
   
   **No effect noted**
d. She or he wanted something but wasn't able to get it (e.g., a food item up on a shelf).

e. You didn't pay attention to the person or left her or him alone for a while (e.g., 15 minutes).


1. Think of each of the behaviors listed in Section A, and try to identify the specific consequences or outcomes the person gets when the behaviors occur in different situations.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Particular situation</th>
<th>What exactly does he or she get?</th>
<th>What exactly does he or she avoid?</th>
</tr>
</thead>
</table>

a. 

b. 

c. 

d. 

e. 

f. 

g. 

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i. 

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E. CONSIDER THE OVERALL EFFICIENCY OF THE PROBLEM BEHAVIORS. EFFICIENCY IS THE COMBINED RESULT OF (A) HOW MUCH PHYSICAL EFFORT IS REQUIRED, (B) HOW OFTEN THE BEHAVIOR IS PERFORMED BEFORE IT IS REWARDED, AND (C) HOW LONG THE PERSON MUST WAIT TO GET THE REWARD.

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F. WHAT FUNCTIONAL ALTERNATIVE BEHAVIORS DOES THE PERSON ALREADY KNOW HOW TO DO?

1. What socially appropriate behaviors or skills can the person already perform that may generate the same outcomes or reinforcers produced by the problem behaviors?

G. WHAT ARE THE PRIMARY WAYS THE PERSON COMMUNICATES WITH OTHER PEOPLE?

1. What are the general expressive communication strategies used by or available to the person? These might include vocal speech, sign/gestures, communication boards/books, or electronic devices. How consistently are the strategies used?

2. On the following chart, indicate the behaviors the person uses to achieve the communicative outcomes listed:

<table>
<thead>
<tr>
<th>Communicative Functions</th>
<th>Complex speech (sentences)</th>
<th>Multiple-word phrases</th>
<th>Echolalia</th>
<th>Other vocalizations</th>
<th>Complex signing</th>
<th>Pointing</th>
<th>Leaning</th>
<th>Shakes head</th>
<th>Grabs objects</th>
<th>Increased movement closer to you</th>
<th>Moves away from you</th>
<th>Fixed gaze</th>
<th>Facial expression</th>
<th>Self-injury</th>
<th>Other</th>
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<td>Request attention</td>
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<td>Show you something or some place</td>
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<td>Indicate physical pain</td>
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<td>(headache, illness)</td>
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<td>Indicate confusion or unhappiness</td>
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<td>Protest or reject a situation or activity</td>
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</table>
3. With regard to the person's receptive communication, or ability to understand other persons...
   a. Does the person follow spoken requests or instructions? If so, approximately how many? (List if only a few.)

   b. Does the person respond to signed or gestural requests or instructions? If so, approximately how many? (List if only a few.)

   c. Is the person able to imitate if you provide physical models for various tasks or activities? (List if only a few.)

   d. How does the person typically indicate yes or no when asked if she or he wants something, wants to go somewhere, and so on?

H. WHAT ARE THINGS YOU SHOULD DO AND THINGS YOU SHOULD AVOID IN WORKING WITH AND SUPPORTING THIS PERSON?

1. What things can you do to improve the likelihood that a teaching session or other activity will go well with this person?

2. What things should you avoid that might interfere with or disrupt a teaching session or activity with this person?

I. WHAT ARE THINGS THE PERSON LIKES AND ARE REINFORCING FOR HIM OR HER?

1. Food items: (List specific food items the person likes.)
2. Toys and objects: 

3. Activities at home: 

4. Activities/outings in the community: 

5. Other: 

### WHAT DO YOU KNOW ABOUT THE HISTORY OF THE UNDESIRABLE BEHAVIORS, THE PROGRAMS THAT HAVE BEEN ATTEMPTED TO DECREASE OR ELIMINATE THEM, AND THE EFFECTS OF THOSE PROGRAMS?

<table>
<thead>
<tr>
<th>Behavior</th>
<th>How long has this been a problem?</th>
<th>Programs</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Farting</td>
<td>1 year</td>
<td>Extinction</td>
<td>Known related to diet</td>
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<tr>
<td>2.</td>
<td></td>
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<td>Consistency at home</td>
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<td>3. Conserving</td>
<td>6 months</td>
<td>Redirection</td>
<td>Unknown</td>
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<td>4.</td>
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<td>Consistency at home</td>
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<tr>
<td>5. Squealing</td>
<td>Prayer in bath</td>
<td>Attitude/behavior unknown</td>
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<td>6.</td>
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<td>Consistency at home</td>
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FUNCTIONAL ASSESSMENT INTERVIEW (FAI):

Person of concern ___________________ Age _______ Sex ☑ F
Date of interview ____________ Interviewer (initials, last name) __________
Respondent _________________________

A. DESCRIBE THE BEHAVIORS

1. For each of the behaviors of concern, define the topography (how it is performed), frequency (how often it occurs per day, week, or month), duration (how long it lasts when it occurs), and intensity (how damaging or destructive the behaviors are when they occur):

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Topography</th>
<th>Frequency</th>
<th>Duration</th>
<th>Intensity</th>
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2. Which of the behaviors described above are likely to occur together in some way? Do they occur about the same time? In some kind of predictable sequence or "chain"? In response to the same type of situation?

   ☑ No, incompatible

124
**B. DEFINE ECOLOGICAL EVENTS (SETTING EVENTS) THAT PREDICT OR SET UP THE PROBLEM BEHAVIORS**

1. What *medications* is the person taking (if any), and how do you believe these may affect his or her behavior?

   
   
   

2. What *medical or physical conditions (if any) does the person experience that may affect his or her behavior (e.g., asthma, allergies, rashes, sinus infections, seizures, problems related to menstruation)?

   
   
   

3. Describe the *sleep patterns* of the individual and the extent to which these patterns may affect his or her behavior.

   - *Sleep wake up during the week*:
   - *Sleep wake up during the weekend*:

4. Describe the *eating routines and diet* of the person and the extent to which these may affect his or her behavior.

   - *Breakfast (6:00-7:00)*:
   - *Lunch (12:00-1:00)*:
   - *Dinner (6:00-7:00)*:

5a. Briefly list below the person's typical daily schedule of activities. (Check the boxes by those activities the person enjoys and those activities most associated with problems.)

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Enjoyed</th>
<th>Problems</th>
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</thead>
<tbody>
<tr>
<td>6:00</td>
<td>Breakfast</td>
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<td>7:00</td>
<td>Exercise</td>
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<td>8:00</td>
<td>Work</td>
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<td>9:00</td>
<td>Lunch</td>
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<td>9:00</td>
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125
5b. To what extent are the activities on the daily schedule predictable for the person, with regard to what will be happening, when it will occur, with whom, and for how long?

[Box for response]

5c. To what extent does the person have the opportunity during the day to make choices about his or her activities and reinforcing events? (e.g., food, clothing, social companions, leisure activities)

[Box for response]

6. How many other persons are typically around the individual at home, school, or work (including staff, classmates, and housemates)? Does the person typically seem bothered in situations that are more crowded and noisy?

[Box for response]

7. What is the pattern of staffing support that the person receives in home, school, work, and other settings (e.g., 1:1, 2:1)? Do you believe that the number of staff, the training of staff, or their social interactions with the person affect the problem behaviors?

[Box for response]

C. DEFINE SPECIFIC IMMEDIATE ANTECEDENT EVENTS THAT PREDICT WHEN THE BEHAVIORS ARE LIKELY AND NOT LIKELY TO OCCUR

1. Times of Day: When are the behaviors most and least likely to happen?

Most likely: [Box for response]

Least likely: [Box for response]
2. **Settings**: Where are the behaviors most and least likely to happen?

   **Most likely**: Run, different rooms, e.g., left side of bed, bath time.

   **Least likely**: *

3. **People**: With whom are the behaviors most and least likely to happen?

   **Most likely**: *Specific name, may be related to specific person.*

   **Least likely**: *

4. **Activity**: What activities are most and least likely to produce the behaviors?

   **Most likely**: *Eating, sleeping, watching television.*

   **Least likely**: *

5. Are there particular or idiosyncratic situations or events not listed above that sometimes seem to "set off" the behaviors, such as particular demands, noises, lights, clothing?

   *Leave room alone.

6. What one thing could you do that would most likely make the undesirable behaviors occur?

   *Leave room alone.

7. Briefly describe how the person’s behavior would be affected if...

   a. You asked him or her to perform a difficult task.
   *Normal eating or talk.

   b. You interrupted a desired activity, such as eating ice cream or watching TV.
   *Most likely, cry or well organized talk.

   c. You unexpectedly changed his or her typical routine or schedule of activities.
   *More yelling or change in talk.
d. She or he wanted something but wasn’t able to get it (e.g., a food item up on a shelf).

e. You didn’t pay attention to the person or left her or him alone for a while (e.g., 15 minutes).


1. Think of each of the behaviors listed in Section A. and try to identify the specific consequences or outcomes the person gets when the behaviors occur in different situations.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Particular situations</th>
<th>What exactly does he or she get?</th>
<th>What exactly does she or he avoid?</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Counting</td>
<td>across activities</td>
<td>✔ park</td>
<td></td>
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<tr>
<td>b. Request</td>
<td>alone</td>
<td>more / less activity</td>
<td></td>
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<tr>
<td>c. Wrapping</td>
<td>hints / graph</td>
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<td>d.</td>
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</table>

E. CONSIDER THE OVERALL EFFICIENCY OF THE PROBLEM BEHAVIORS. EFFICIENCY IS THE COMBINED RESULT OF (A) HOW MUCH PHYSICAL EFFORT IS REQUIRED, (B) HOW OFTEN THE BEHAVIOR IS PERFORMED BEFORE IT IS REWARDED, AND (C) HOW LONG THE PERSON MUST WAIT TO GET THE REWARD.

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<thead>
<tr>
<th>Low Efficiency</th>
<th>High Efficiency</th>
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<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
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F. WHAT FUNCTIONAL ALTERNATIVE BEHAVIORS DOES THE PERSON ALREADY KNOW HOW TO DO?

1. What socially appropriate behaviors or skills can the person already perform that may generate the same outcomes or reinforcers produced by the problem behaviors?

G. WHAT ARE THE PRIMARY WAYS THE PERSON COMMUNICATES WITH OTHER PEOPLE?

1. What are the general expressive communication strategies used by or available to the person? These might include vocal speech, signs/postures, communication boards/books, or electronic devices. How consistently are the strategies used?

2. On the following chart, indicate the behaviors the person uses to achieve the communicative outcomes listed:

| Communicative Functions | Complex speech | Multiple-word phrases | One-word utterances | Echolalia | Other vocalizing | Complex signing | Pointing | Leading | Shakes head | Grabs objects | Increased movement | Moves close to you | Moves away or leaves | Fixed gaze | Facial expression | Aggression | Self-injury | Other |
|-------------------------|----------------|-----------------------|--------------------|----------|----------------|----------------|---------|---------|------------|---------------|-------------------|-----------------|------------------|-----------|-------------|----------|-----------|
| Request attention       |                |                       |                    |          |                |                |         |         |            |                |                   |                 |                  |           |             |          |           |
| Request help            |                |                       |                    |          |                |                |         |         |            |                |                   |                 |                  |           |             |          |           |
| Request preferred food/objects/activities | | | | | | | | | | | | | | | | | | |
| Request break           |                |                       |                    |          |                |                |         |         |            |                |                   |                 |                  |           |             |          |           |
| Show you something or some place | | | | | | | | | | | | | | | | | | |
| Indicate physical pain (headache, illness) | | | | | | | | | | | | | | | | | | |
| Indicate confusion or unhappiness | | | | | | | | | | | | | | | | | | |
| Protest or reject a situation or activity | | | | | | | | | | | | | | | | | | |
3. With regard to the person's receptive communication, or ability to understand other persons:
   a. Does the person follow spoken requests or instructions? If so, approximately how many? (List if only a few.)
   b. Does the person respond to signed or gestural requests or instructions? If so, approximately how many? (List if only a few.)
   c. Is the person able to imitate if you provide physical models for various tasks or activities? (List if only a few.)
   d. How does the person typically indicate yes or no when asked if she or he wants something, wants to go somewhere, and so on?

H. WHAT ARE THINGS YOU SHOULD DO AND THINGS YOU SHOULD AVOID IN WORKING WITH AND SUPPORTING THIS PERSON?
   1. What things can you do to improve the likelihood that a teaching session or other activity will go well with this person?
   2. What things should you avoid that might interfere with or disrupt a teaching session or activity with this person?

J. WHAT ARE THINGS THE PERSON LIKES AND ARE REINFORCING FOR HIM OR HER?
   1. Food items: fruit, cookies, crackers
2. Toys and objects:  

3. Activities at home:  

4. Activities/outings in the community:  

5. Other:  

J. WHAT DO YOU KNOW ABOUT THE HISTORY OF THE UNDESIRABLE BEHAVIORS, THE PROGRAMS THAT HAVE BEEN ATTEMPTED TO DECREASE OR ELIMINATE THEM, AND THE EFFECTS OF THOSE PROGRAMS?

<table>
<thead>
<tr>
<th>Behavior</th>
<th>How long has this been a problem?</th>
<th>Programs</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. repeated tall</td>
<td>6-12 months</td>
<td>extinction</td>
<td>little decrease</td>
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<tr>
<td>2.</td>
<td></td>
<td>redirection activity</td>
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<tr>
<td>3.</td>
<td></td>
<td>redirection language</td>
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<td>4.</td>
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<td>consequence/fine</td>
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APPENDIX F

Direct Observation Data Sheet
Direct Observation

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Antecedent</th>
<th>Behavior (Specify Verbal Utterances)</th>
<th>Consequence</th>
<th>Duration</th>
<th>Other Information</th>
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