Novel Therapist Effects on the Functional Analysis Attention Condition

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Abstract

A functional analysis is one method used to assess the variable or variables that maintain maladaptive behaviors. The purpose of this study was to determine whether or not the familiarity of the therapist influenced the results in the attention condition. A novel therapist and familiar therapist alternated turns conducting the functional analysis for each participant. The results indicated that for two participants, the attention condition results were undifferentiated for the novel and familiar therapists. For the third participant, however, results were differentiated and the targeted behavior occurred more frequently for the familiar therapist. These results suggested that the familiarity of the therapist may have affected the outcomes of the functional analysis.
Novel Therapist Effects on the Functional Analysis Attention Condition

There are several stimulus variables which can affect the outcomes of a functional analysis. When conducting a functional analysis and developing function-based interventions, clinicians and researchers should be aware of the potential confounds associated with different stimulus characteristics (LeBlanc, Hagopian, Marhefka, & Wilke, 2001). For example, characteristics of attention should be examined closely when looking at functional analysis outcomes (LeBlanc et al., 2001).

Often subtle forms of attention are not evaluated during a functional analysis. However, some of these forms of attention, such as eye contact and tickles, could be responsible for maintaining the behavior in the natural environment. (Kodak, Northup, & Kelley, 2007). When a functional analysis is implemented, whether the experimenter is novel or familiar may influence the type of attention delivered to the participant. This could occur for many reasons, such as, the familiar experimenter may be more enthusiastic with verbal praise, while the novel experimenter may be more neutral because there is no prior history with the participant. The opposite may also be true and the novel experimenter may be more enthusiastic, while the familiar experimenter may be more neutral. Several studies demonstrate that the various forms and quality of attention can have differential effects on the functional analysis and treatment outcomes (LeBlanc et al., 2001). Since there are numerous forms of attention in the natural environment, future research is needed to examine their impact on problem behaviors (Kodak et al., 2007).

When looking at the definition of a functional analysis, the assessment’s complexities become apparent. These complexities may contribute to the reason why
many stimulus variables must be taken into consideration when analyzing functional analysis outcomes. According to Conners, Iwata, Kahng, Hanley, Worsdell, & Thompson (2000), a functional analysis is a widely used assessment procedure that identifies variables that maintain problem behavior. LeBlanc et al., (2001) states a functional analysis involves an experimental manipulation of contingencies and motivating operations that may affect problem behavior. These two definitions are slightly different but they both reveal the importance of taking each functional analysis component into consideration while identifying both the benefits and limitations of the assessment outcomes.

One benefit of a functional analysis is identification of potential effects of treatments. The functional analysis can be effective in predicting environmental determinants of maladaptive behavior, which could influence successful treatments. For example, treatment for destructive behavior may be more effective when it is based on functional analysis results because the contingencies are more likely to be identified (Iwata, Pace, Dorsey, Zarcone, Vollmer, Smith, et al., 1994).

One limitation to the functional analysis is that there may be a variation in responding within or across assessment conditions. Variation in responding may occur for a variety of reasons including the immediacy, amount or quality of reinforcement. The variation in responding can interfere with the results (Berg, Peck, Wacker, Harding, McComas, Richman, et al., 2000). Therefore, controlled and uncontrolled reinforcement before the assessment should be considered when interpreting variable or undifferentiated responding. Also, ambiguous results may occur because the antecedent stimuli incorporated in the assessment are not the same as those associated with the natural
environment. For example, there may be differential effects on functional analysis results when caregivers versus inpatient staff serve as therapists (Ringdhal & Sellers, 2000). Given these limitations associated with the functional analysis, researchers and clinicians must take environmental influences into consideration when implementing a functional analysis and interpreting results.

The first potential environmental influence on functional analysis outcomes is sequence effects. The Iwata et al., (1994) study suggested that a fixed cycle of conditions can maximize motivating operations. For example, if the problem behavior is maintained by attention, conducting the alone condition prior to the attention condition would provide deprivation from attention. However, the play condition includes non-contingent attention. Therefore, if the play condition is conducted prior to the attention condition it might eliminate deprivation of attention. This may occur because the participant can satiate on the attention given by the therapist during the play condition.

Another environmental influence may be session duration effects on functional analysis outcomes. Wallace & Iwata (1990) suggested that the problem with brief sessions is that participants may not discriminate between conditions because there is not sufficient exposure to the contingencies. The antecedent manipulations that modify establishing operations may occasion behavior only if they have been contacted for some amount of time. Wallace et al., (1990) compared functional analysis sessions of 15 minutes, 10 minutes and 5 minutes in length. The results showed that the 10 minute and 15 minute sessions yielded the same interpretations. However, the 5 minute and 15 minute sessions produced three discrepancies because there was an increase in response rate during the latter part of the session.
Pre-session exposure to attention prior to conducting a functional analysis may also impact functional analysis outcomes. Berg et al., (2000) hypothesized that exposure to dense schedules of attention immediately before an attention assessment would influence the target behavior within subsequent assessment conditions. In the first experiment, a non-contingent attention condition (free play) or contingent escape condition preceded a contingent attention assessment condition. In the second experiment, either dense levels of noncontingent reinforcement or an alone condition preceded a low attention condition. In the third experiment, 10 minutes of free play or 10 minutes of playing alone preceded a two-choice preference assessment. The results demonstrated that in each experiment the participants responded differentially within the test condition depending on the schedule of attention that occurred immediately prior to that assessment condition.

O’Reilly (1999) also assessed effect of pre-session attention on the frequency of attention-maintained behavior. The results showed that when the participant was deprived of attention (no social interaction for 1 hour) prior to the analysis there were higher rates of head hitting. This was compared to the participant receiving high rates of attention (FT 30 seconds for 1 hour) prior to the functional analysis. This study suggested that if individuals have minimal access to attention for long periods of time, they may be more likely to emit an undesirable response that has a higher probability of producing attention. Therefore, the probability of more severe problem behavior may decrease if the environment is rich with non-contingent reinforcement. For example, head hitting may be a more effortful response compared to other responses. However, if head hitting
historically produced more immediate reinforcement then it might occur more when there 
is a deprivation of attention.

Discriminative stimuli also may affect functional analysis outcomes. Conners et 
al., (2000) investigated differential responding in the presence and absence of 
discriminative stimuli during a multi-element functional analysis. During the first 
analysis each condition was correlated with a specific room color and a specific therapist. 
In the next analysis all conditions were conducted in the same room, by the same 
therapist. In this study, the programmed stimuli served as discriminative stimuli for half 
the participants (four of eight), demonstrating that the types of programmed stimuli may 
not affect outcomes and that sensitivity to these stimuli may vary by participants learning 
history.

Gender and type of attention can also influence functional analysis outcomes. 
The LeBlanc et al., (2001) study assessed gender and type of attention effects more 
closely by examining the effects of therapist gender and type of attention (physical versus 
verbal) on attention-maintained aggression in a female adolescent. In the first phase a 
functional analysis demonstrated that the targeted behavior was maintained by attention. 
A descriptive analysis suggested that the participant targeted male staff with more severe 
aggression, sought the attention of males over females and preferred physical attention 
over social attention regardless of gender. The second phase looked at the main and 
interaction effects of the type of attention and therapist gender on non-contingent 
reinforcement. Two conditions of continuous non-contingent attention (verbal attention 
versus physical attention) were compared in a reversal design. Within each phase of the 
reversal, the male therapist conducted one condition and the female therapist conducted
the other condition. The results showed that there were higher rates of aggression in the male therapist condition compared to the female therapist condition. There were also higher rates of aggression in the verbal attention condition compared to the physical attention condition. Kodak et al., (2007) also investigated various forms of attention that were provided during a functional analysis. The forms of attention provided were: verbal reprimands (“I don’t like when you hit me”), unrelated comments, physical attention, tickles, eye contact, and praise. The results indicated that each form of attention affected problem behavior differently. Fisher, Ninness, Piazza, & Owen-DeSchryver (1996) examined attention in form of verbal statements. A functional analysis was conducted using Iwata et al.’s (1994) methods. Next, two attention conditions were implemented in order to determine if the content of verbal attention was responsible for maintaining destructive behavior. During the verbal reprimand condition, statements such as “Don’t hit me” or “That hurts” were delivered contingent upon destructive behavior. In the unrelated verbal statement condition, comments such as “It’s a sunny day” were delivered contingent upon destructive behavior. The results indicated that destructive behavior was higher in the verbal reprimand condition. Therefore, the verbal reprimands may have exhibited discriminative properties with information regarding contingencies. The evaluation of multiple sources of attention, such as the LeBlanc, Kodak and Fisher studies, may be a useful tool when functional analysis results are undifferentiated.

Professionals usually serve as therapists when implementing assessments (Cooper, Wacker, Sasso, Reimers, & Donn, 1990). Cooper et al., attempted to determine if a functional analysis could be adapted to children of typical intelligence, in an outpatient setting, using parents as therapists. The children’s parents conducted the
assessment by varying attention and task demands while assessing appropriate child behavior. For 7 out of 8 participants, appropriate behavior varied across assessment conditions and parents were able to implement the procedure. This study is an example of how parents appeared capable of acting as therapists in order to facilitate control over their children’s appropriate behavior.

There are many reasons why novel versus familiar therapist effects can influence functional analysis outcomes. Ringdahl and Sellers (2000) conducted a study, which examined the effects of different adults playing the role of therapists during functional analysis sessions. The purpose was to test whether or not caregivers acting as therapists instead of clinical staff conducting a functional analysis would result in different responding. The results of this study were that problem behavior was higher when caregivers acted as therapists, which indicates that the adults may have served as a discriminative stimulus for problem behavior. Another explanation for these results is that the presence of different adults may have altered the establishing operations related to functional reinforcement. Also, procedural integrity was not conducted during this study so the caregivers and clinical staff may have conducted the functional analysis differently. Therefore, different consequences may have occurred contingent on the targeted behaviors, producing different results.

Another study looked at the role of familiar versus novel therapist effects on functional analysis outcomes. Progar, North, Bruce, DiNovi, Nau, Eberman, Bailey, & Nussbaum (2001) assessed the impact of familiar and unfamiliar therapists on demand sessions during a functional analysis. The familiar staff had worked with the participant for five months and the unfamiliar staff had never worked with the participant before.
Since the behavior was maintained by escape, positive reinforcement was delivered contingent upon compliance and absence of aggression during demand sessions when conducted by the two familiar therapists. The participant exhibited higher rates of aggression with the familiar staff compared to the unfamiliar staff. The results suggest that there may have been a previous aversive history with the two familiar therapists, which still influenced the participant’s current behavior.

While looking at the environmental factors that influence functional analysis outcomes, it is evident why more research is needed to identify all possible confounding variables. Most functional analyses are conducted in neutral places regarding behavioral history with neutral experimenters. It is still unknown to what extent the accuracy and efficiency of the different functional analysis variables will affect outcomes when having teachers conduct sessions in the natural environment. A more direct measure is needed to identify the limitations and benefits of incorporating natural environmental characteristics into functional analysis conditions. It seems valid to integrate as many natural contingencies as possible as long as integrity is maintained (Hanley, Iwata & McCord, 2003).

As demonstrated by the research reviewed here, the client/experimenter relationship must be taken into consideration when implementing functional analysis conditions. If familiar staff conduct a condition, the client may be more likely to engage in behavior in part because of prior history. However, a novel experimenter’s presence may not serve as a discriminating stimulus for the client to exhibit the behavior because there is no prior history. The present study looks at novel and familiar therapist effects on the functional analysis attention condition in a school setting. The participants’ current
teachers served as familiar therapists and staff, who had no prior teaching history with the participants, served as novel therapists. The study assessed whether or not attention delivered by novel versus familiar therapists contingent on targeted behaviors would yield differentiated results.

Method

Participants and Setting

The participants in this study attended a private school for children with autism. Participant 1 was Jake, a 12 year-old boy diagnosed with autism. He was a non-verbal communicator and requested items through exchanging icons and gesturing at desired items. Participant 2 was Tim, an 18 year-old boy diagnosed with autism. He was also a non-verbal communicator and requested items through exchanging icons and gesturing at desired items. Participant 3 was Dave, a 19 year-old boy diagnosed with Down Syndrome and Pervasive Developmental Disorder. He was a verbal communicator and requested items through speaking, but used a picture communication book to request items with unfamiliar people.

The participants met the following requirements before being included in the study: (a) The participant must have demonstrated that attention was a variable maintaining the targeted behavior as indicated by the ABC assessment and Functional Analysis Screening Tool (FAST) survey (The Florida Center on Self-Injury, 1996); (b) during the functional analysis, the targeted behaviors must have occurred most frequently in the attention condition for either the novel or familiar staff conditions.

Six staff members at the site served as therapists during the functional analysis. A therapist was considered novel if he or she had never worked in the participant’s
classroom as a teacher, supervisor, or substitute for more than one week. A therapist was considered familiar if he or she had been a teacher in the participant’s classroom for at least 3 months and at least two months prior to the study. In order to enhance differentiation between therapists, the novel therapist was required to wear “regular” clothes, while the familiar staff was required to wear the staff uniform.

The type of functional analysis training each therapist received depended on his or her individual experience. If the therapist had no experience conducting a functional analysis then he or she reviewed a detailed description of each condition with the experimenter. After that, the therapist was required to watch at least one functional analysis being conducted and then role-play each condition with the experimenter. The therapists were allowed to ask questions throughout the training. If the therapist had previous experience conducting a functional analysis then he or she reviewed descriptions of each condition specific to this study with the experimenter and he or she could then ask questions.

For Jake, the familiar therapist was his current classroom teacher. This staff member had been his teacher 6 months prior to the study and had no prior experience conducting a functional analysis. Jake’s novel therapist was a consultant at his school and had prior experience conducting a functional analysis. For Tim, the familiar therapist was his current classroom teacher for 4 months and had experience conducting a functional analysis. Tim’s novel therapist was a classroom supervisor and had experience conducting a functional analysis before. For Dave, the familiar therapist was his current teacher of 6 months and had some previous exposure to functional analyses but never
conducted one. The novel therapist was a curriculum coordinator at the school and had conducted a functional analysis before.

For all three participants, the functional analyses were conducted in their respective classrooms. Jake’s functional analysis conditions were conducted at his assigned table, with the therapist sitting adjacent to him. Tim and Dave’s functional analyses were conducted at tables adjacent to their regular desks to ensure more space. Classmates and other students were present while the functional analyses were being conducted. The experimenter placed different color cue cards on the desk to serve as a discriminative stimulus for each condition. A purple cue card was placed on the table for the attention condition, a pink card for the demand condition and a yellow card for the play condition.

*Dependent Variables, Interobserver Agreement and Integrity*

For the purpose of this study, Jake’s *out of seats* were defined as any instance of his buttocks leaving the seat by more than 1 inch. The episode ended when his buttocks contacted the seat. Tim’s *wandering* was defined as leaving his seat or designated area without permission. The episode ended when Tim sat down in his seat. Dave’s *self-injurious behavior (SIB)* was defined as any instance of Dave banging his head or chin with his hand/fist and/or against objects, pinching himself, poking own eye, pulling his hair, or biting his hand. Episodes were separated by 5 seconds absence of the target behavior. For Jake and Dave, data were collected during five-minute sessions, using a 10-second partial-interval recording method. For Tim, data were collected during five-minute sessions, using the latency to first response recording method. The latency to first
response recording method was used because once Tim engaged in wandering, he would not sit down in his for the rest of the session.

Two observers independently but simultaneously scored responses for 32% of the functional analysis conditions. For Jake and Dave, overall, occurrence and nonoccurrence interobserver agreement (IOA) were calculated on an interval-by-interval basis by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. The mean score was 97% (range, 90% to 100%) for Jake and 95% (range, 87% to 98%) for Dave. Tim’s IOA data were calculated on a mean duration per occurrence by dividing the sum of the individual IOAs per occurrence by the total number of responses for which two observers measured duration and multiplying by 100. The mean score was 100% for Tim.

An independent observer collected procedural integrity data for 54% of total sessions for all 3 participants. Procedural integrity data was based on a checklist, which was comprised of 13 items describing therapist criteria and the antecedents and consequences delivered during each condition. Data were calculated by dividing the checked items by the total number of checked plus non-checked items on the list. The mean score for Jake’s familiar therapist was 100% and for his novel therapist the mean score was 100%. The mean score for Tim’s familiar therapist was 100% and for his novel therapist the mean score was 97% (range, 92%-100%). The mean score for Dave’s familiar therapist was 87% (range, 80%-100%) and for his novel therapist the mean score was 96% (range, 82%-100%).

*Experimental Design*
The experiment was conducted using a reversal and alternating treatments design for all 3 participants. Over two months for each participant, 2-3 sessions were conducted per week. For Dave, there was a two-week winter break in between sessions six and seven. A total of 12 sessions were conducted with Jake and Tim and a total of 13 sessions were conducted with Dave.

Pre-assessments

*FAST Survey.* The first pre-assessment conducted with the participants’ teachers and classroom supervisors was the FAST survey. The survey consisted of 18 statements, and the informant circled “yes” or “no,” based on whether or not the statement was applicable to the participant. The experimenter scored the survey by tallying the number of items that were answered “yes” for each statement. The totals were then categorized by “likely maintaining variables” such as: social reinforcement (attention/preferables), social reinforcement (escape), automatic reinforcement (sensory stimulation) and automatic reinforcement (pain attenuation). For each participant, the total scores in each category were averaged across all informants.

*ABC Assessment.* The second pre-assessment was the Antecedent Behavior Consequence (ABC) data method. The experimenter used a narrative ABC data sheet and recorded the antecedent, behaviors, and consequences of the targeted behaviors. For each participant, the antecedents were categorized as: item removed, instruction, transition or ignored and the consequences were categorized as: attention delivered, redirected, ignored, or given access to an item. Data were recorded as the total number of occurrences the targeted behaviors displayed in each category. During the observations,
the participants were engaged in their regular routines in the classroom, while the experimenter collected data.

Functional Analysis

To determine the consequences that were maintaining the targeted behaviors, functional analyses were conducted. The functional analysis consisted of three conditions (demand, attention, and play) as described by Iwata et al., 1994. For each participant the novel therapist would conduct 3 functional analysis conditions, which were run in a random alternating sequence. Once the functional analyses were completed with the novel therapist, the same procedure was repeated with the familiar therapist.

Demand Condition. In this component the therapists presented the participants with either picture or number identification tasks. The therapists conducted trials every 10 seconds using a prompt hierarchy (instruction, demonstration, and physical guidance). The therapist delivered praise for correct responding. If the participants engaged in the targeted behaviors, the therapists immediately removed the task and turned away for 30 seconds. For Jake and Dave, the next trial was presented after the 30 seconds. However, if Tim was still wandering after the 30 seconds, the therapist would say, “It looks like you aren’t ready to sit down.” This process was repeated until Tim sat down in his seat and then the therapists continued the next trial after 30 seconds. All other non-targeted behaviors were ignored during this condition.

Attention Condition. In this component the therapists presented each participant with a leisure activity (legos for Jake, puzzles for Tim, and string beads or sorting bears for Dave). The therapists instructed the participants to engage in their respective leisure activities, while they worked with another student at the table. The therapists ignored all
of the participants’ behaviors except contingent upon targeted behaviors, the therapist delivered statements of concern such as, “You are going to hurt yourself,” or “You are making me worried when you do that.” The statements were occasionally paired with brief physical contact.

**Play Condition.** In this component the therapists presented the participants with items, which were previously identified as highly preferred by current teachers (doll, links, and blocks for Jake; pictures, string and felt strips for Tim; and music, a photo album and a book for Dave). The therapists told the participants that they could play with their toys. The therapist then delivered physical and/or verbal attention at least once every 30 seconds. If the participants engaged in targeted behaviors they were then ignored and the therapist waited to give attention until 5 seconds absence of the behavior. Non-targeted behaviors were also ignored. The therapists did not place demands on the participants and they were permitted to roam the room freely. For Jake and Tim, teachers would block other students in the classroom from entering the immediate area.

**Results**

**Pre-Assessments**

**FAST Survey.** Four surveys were completed for each participant. Figures 1 through 3 display the FAST survey results for each participant. The average scores in each category for Jake were: social reinforcement (attention/preferables), 4; social reinforcement (escape), 1.3; automatic reinforcement (sensory stimulation), 2; and automatic reinforcement (pain attenuation), .75 (Figure 1). The results indicate that out of seats were maintained by social reinforcement (attention/preferables) category.
The average scores in each category for Tim were: social reinforcement (attention/preferables), 3.75; social reinforcement (escape), 2.75; automatic reinforcement (sensory stimulation), 3; and automatic reinforcement (pain attenuation), .5 (Figure 2). The results indicate that wandering was maintained by social reinforcement (attention/preferables) category.

The average scores in each category for Dave were: social reinforcement (attention/preferables), 3.5; social reinforcement (escape), 2.3; automatic reinforcement (sensory stimulation), 1.5; and automatic reinforcement (pain attenuation), .5 (Figure 3). The results indicate that SIBs were maintained by social reinforcement (attention/preferables).

ABC Assessment. ABC data were collected during 30-45 minute observations over 3 days for each participant. Figures 4 through 9 display the ABC assessment results for each participant. The average scores in each antecedent category for Jake were: item removed; 0, instruction; 0, transition; 1 or ignored; 7 (Figure 4). The average consequence scores for Jake were: attention; 0, redirected; 8, ignored; 0, or given access to the item; 0 (Figure 5). The results indicate that out of seats occur most often when Jake is being ignored and the most common consequence provided for his behavior is that he is redirected, which suggests that out of seats are maintained by social reinforcement.

The average scores in each antecedent category for Tim were: item removed; 0, instruction; 0, transition; 0 or ignored; 13 (Figure 6). The average consequence scores for Tim were: attention; 0, redirected; 13, ignored; 0, or given access to the item; 0 (Figure 7). The results indicate that wandering occurs most often when Tim is being ignored and
the most common consequence provided for his behavior is that he is redirected, which suggests that wandering is maintained by social reinforcement.

The average scores in each antecedent category for Dave were: item removed: 0, instruction: 0, transition: 0 or ignored: 19 (Figure 8). The average consequence scores for Dave were: attention: 10, redirected: 0, ignored: 9, or given access to the item: 0 (Figure 9). The results indicate that SIBs occurs most often when Dave is being ignored and the most common consequence provided for his behavior is that he receives attention and suggests that SIBs are maintained by social reinforcement.

*Functional Analysis*

For Jake and Tim, a total of 36 functional analysis sessions were conducted for each participant (5 minutes each and 12 sessions each condition). For Dave, a total of 39 functional analysis sessions were conducted (5 minutes each and 13 sessions each condition). During this time 1,080 intervals of occurrence and non-occurrence behavior were recorded for both Jake and Tim and 1,170 intervals for Dave.

Figure 10 displays the functional analysis results for Jake. During the first novel therapist phase, the percent occurrences of out seats in the attention condition were: session 1, 30%; session 2, 100%; and session 3, 70%. During the first familiar therapist phase, the percent occurrences of out seats in the attention condition were: session 4, 87%; session 5, 10%; and session 6, 73%. During the second novel therapist phase, the percent occurrences of out seats in the attention condition were: session 7, 90%; session 8, 37%; and session 9, 97%. During the second familiar therapist phase, the percent occurrences of out seat in the attention condition were: session 10, 10%; session 11, 73%; and session 12, 97%. The percent of out of seats were the highest in the attention
condition at 92% of the sessions. In the attention conditions, out of seat behavior was consistently variable across sessions and conditions throughout the experiment. Jake’s results did not indicate differential responding across novel and familiar therapist phases.

Figure 11 displays the functional analysis results for Tim. During the first novel therapist phase, the times (in seconds) to wandering in the attention condition were: session 1, 110 sec.; session 2, 102 sec.; and session 3, 47 sec. During the first familiar therapist phase, the times to wandering in the attention condition were: session 4, 300 sec.; session 5, 36 sec.; and session 6, 60 sec. During the second novel therapist phase, the times to wandering in the attention condition were: session 7, 300 sec.; session 8, 300 sec.; and session 9, 32 sec. During the second familiar therapist phase, the times to wandering in the attention condition were: session 10, 300 sec.; session 11, 200 sec.; and session 12, 251 sec. The times to wandering were shortest in the attention condition at 50% of the sessions. After the sixth session (last two phases), wandering takes longer to occur in comparison to the first two phases. Tim did not exhibit differential responding across novel and familiar therapist phases.

Figure 12 displays the functional analysis results for Dave. During the first novel therapist phase, percent occurrences of SIB in the following attention condition were: session 1, 0%; session 2, 13%; and session 3, 0%. During the first familiar therapist phase, the percent occurrences of SIB in the attention condition were: session 4, 17%; session 5, 10%; and session 6, 13%. During the second novel therapist phase, the percent occurrences of SIB in the attention condition were: session 7, 0%; session 8, 20%; and session 9, 0%. During the second familiar therapist phase, the percent occurrences of SIB in the attention condition were: session 10, 7%; session 11, 13%; and session 12, 30%.
During the third novel therapist phase, the percent occurrences of SIB in the attention condition were: session 13, 0%. The percent occurrences of SIBs were highest in the attention condition at 62% of the sessions and SIBs occurred more frequently during the familiar therapist phases. Dave’s results demonstrate differential responding across the novel and familiar therapist phases.

**Discussion**

The results of this study indicate that for two participants, when novel and familiar therapists delivered attention contingent on targeted behaviors, the results were undifferentiated. These two participants did not discriminate between the novel and familiar therapists. However, for one participant, the results were differentiated. This participant exhibited higher rates of the targeted behaviors when a familiar therapist conducted the functional analysis attention condition. For this participant, the experiment’s results are consistent with past research (Progar et al., 2001).

The results of this study suggest that procedural integrity may also affect the experiment’s outcomes. For Jake and Tim, the procedural integrity was identical or differs by only 3 percent, for both of their novel and familiar therapists. Consequently, the results may be undifferentiated for both of these participants because the novel and familiar therapist conduct the functional analysis with the same integrity. On the contrary, for Dave, the procedural integrity for the novel and familiar therapists was more variable. The difference in procedural integrity may be partially responsible for the differentiated results between Dave’s novel and familiar therapists. Dave’s results are similar to those found in the Ringdahl and Sellers (2000) study. Because the Ringdahl and Sellers study
did not collect procedural integrity data, it is possible that the therapists’ implementation of conditions may have contributed to differential responding.

These results suggest that the therapist conducting the functional analysis may not be a variable affecting most outcomes and it is important to examine each assessment component when interpreting conclusions. The therapist alone may not influence assessment outcomes, but in combination with other variables, such as the setting or length of the functional analysis, the participant may respond differently to dissimilar therapists. Therefore, different combinations of variables for each individual will determine to what degree therapist attention has over responding.

Several limitations appear in the current study. One limitation is that the novel therapist may have become more familiar over time. Although the participants only have exposure to the novel therapist during the functional analysis, a learning history is created. The different functioning levels, discrimination skills, and reinforcement history of each participant will determine the point at which a novel therapist stops being novel. For some participants, working with a therapist only once or twice may substantially decrease the novel qualities of that particular person. The reason why the novel therapist remains constant throughout this functional analysis is due to the issue of control. If different novel therapists run the conditions with the same participant, there is a chance that each novel therapist may conduct the conditions differently.

For two participants, the results suggest that the novel therapist may have become more familiar over time. Jake’s results indicated a slight increase in out of seats in the attention condition with the novel therapist at the end of the experiment. During the third phase (novel therapist), out of seats occur at higher frequencies in comparison to the first
phase (novel therapist). For Tim’s final sessions (3 and 9) in the first and third novel therapist phases, the time it takes for him to wander in the attention condition is shorter than previous sessions. Also, the shortest time which wandering occurs during Tim’s functional analysis is in the last session of the second novel therapist phase (session 9). Therefore, it is possible that over time, it is more reinforcing for Jake and Tim to seek attention from the novel therapist because that therapist is more familiar.

Another limitation is that 5-minute conditions may not be adequate time for the participants to contact the contingencies for each condition. When comparing Jake and Tim’s results in the novel and familiar therapist phases, there is no significant differentiation in behaviors during the attention condition. For Jake, out of seats occur in the attention condition occur at high rates for a majority of the sessions. If the sessions were conducted for a longer amount of time, out of seats may decrease as time increases. Over longer periods of time, Jake may start to satiate on attention delivered by one particular therapist within a session, thus producing differentiation between therapists. In Tim’s case, for the first sessions during 3 out of 4 of the phases, wandering did not occur in the attention condition so he did not contact the contingency. Consequently, it is possible that if longer conditions are run, the participants will have more time to contact the contingencies, allowing for greater differentiation between phases.

Dave did exhibit some differentiation between the novel and familiar therapist, while engaging in SIB. However, the experimenter could not conduct more sessions to further support the claim that there was differential responding. There are various factors, which did not allow the experimenter to continue the functional analysis after session 13
including the limited availability of the novel therapist due to her 4-day work schedule, her absence because of an illness, Dave’s work schedule, and Dave’s attendance.

The amount of time the participant spent with the familiar therapist prior to the functional analysis is another limitation. At the school, the participants work with their teachers on a rotating schedule. The participants may change the teachers who they are working with depending on the day of the week or time of day. The experimenter could not control for the frequency of contact prior to the analysis sessions. If there was contact immediately before the assessment, the participants may satiate on the attention from the familiar therapists. Conversely, if there is no prior interaction between the familiar therapists and the participants, the presentation of the familiar therapist during the functional analysis may serve as an establishing operation for the participant to engage in the targeted behaviors in order to access attention from the familiar therapist.

Since there were no significant differentiation in the results for Jake and Tim, it may mean that engaging in targeted behaviors is more opportunistic in nature, rather than it being motivated by therapist characteristics. The opportunity of gaining attention may be more reinforcing than the actual person giving the attention. The opposite may be true for Dave. Since Dave is able to differentiate between therapists, it is possible that for him the therapist characteristics are more reinforcing than then the opportunity to gain attention in itself.

Another issue to take into consideration is that the phase shift may represent a shift in preference for therapist attention. It is possible that the participant needs to contact the contingency with the associated therapist before engaging in the behavior. For example, Tim may correlate the change in therapist with a different contingency.
Looking at Tim’s results, wandering never occurs in the attention condition after the therapist shift. The latency to first response recording method may be another reason why wandering did not occur after the phase shifts. It is possible that Tim has more exposure to the attention condition contingencies in comparison to other participants. For example, if Tim wanders in the first couple of seconds during a session, he will then access constant attention for the remaining five minutes. In sessions 3, 6, and 9, Tim receives longer amounts of attention, which may serve as an abolishing operation for him to not engage in wandering during sessions 4, 7, and 10. Dave’s results show a similar effect. Dave’s SIBs do not occur or occur at a very low frequency (2\textsuperscript{nd} familiar therapist phase) in the attention condition when there is a therapist shift in 4 out of the 5 phases.

Future research may look specifically at the different forms of attention which are associated with each therapist (novel and familiar). In typical situations, the novel and familiar therapist will probably provide different forms of attention when conducting a functional analysis. For example, the novel and familiar therapist may say different phrases or give different forms of physical attention (i.e. back rubs instead of head pats). In this experiment, this did not occur. Both the novel and familiar therapists were instructed to deliver the same form of attention, and say phrases such as, “you are making me worried” or “you are going to hurt yourself.” Different results may ensue if the experimenter does not provide guidelines to the novel and familiar therapists on what he or she should do or say when the participant exhibits a target behavior.

It is also worth noting the types of therapists who conduct functional analyses in research studies. Most research studies do not completely describe the therapist/participant relationship. Iwata et al.’s 1994 study examines the reinforcing
functions of SIB for 152 single-subjects. This research indicates that social-negative reinforcement (escape) functions as the maintaining variable for 38% of the total cases, while social-positive reinforcement (attention) accounts for 26.3% of the total cases. It is unclear as to whether or not familiar or novel therapists conducted these sessions. If one assumes that novel therapists are responsible for conducting these sessions, the results may be different with familiar therapists. Iwata et al.’s extensive study may cause people to say that social-negative reinforcement is the predominant function responsible for maintaining problem behaviors. However, one may question these results when taking therapist characteristics into consideration. In the future, researchers should be more explicit when describing the therapist/participant relationship in an experiment.

The social significance of this study is that experimenters should take each participant’s prior history with the therapist into consideration before conducting a functional analysis. If the participant’s behaviors seem to be more opportunistic, it may not matter whether a familiar or novel therapist is conducting the assessment. However, if the participant does discriminate between novel and familiar staff, it is more important to take the therapist conducting the functional analysis into consideration. For example, if only a novel therapist conducted Dave’s functional analysis, the experimenter may not consider attention as the maintaining variable.
Reference List


Figure Captions

*Figure 1.* Jake’s average scores in each category for the FAST survey.

*Figure 2.* Tim’s average scores in each category for the FAST survey.

*Figure 3.* Dave’s average scores in each category for the FAST survey.

*Figure 4.* Occurrences of out of seats for Jake in each antecedent category during the ABC assessment.

*Figure 5.* Occurrences of out of seats for Jake in each consequence category during the ABC assessment.

*Figure 6.* Occurrences of wandering for Tim in each antecedent category during the ABC assessment.

*Figure 7.* Occurrences of wandering for Tim in each consequence category during the ABC assessment.

*Figure 8.* Occurrences of SIBs for Dave in each antecedent category during the ABC assessment.

*Figure 9.* Occurrences of SIBs for Dave in each consequence category during the ABC assessment.

*Figure 10.* Percent out seats observed for Jake during the functional analysis attention, demand, and play conditions, across the novel and familiar therapist phases.

*Figure 11.* Latency to first response (in seconds) of wandering for Tim during the functional analysis attention, demand, and play conditions, across the novel and familiar therapist phases.

*Figure 12.* Percent of SIBs observed for Dave during the functional analysis attention, demand, and play conditions, across the novel and familiar therapist phases.
Figure 1

FAST Jake

<table>
<thead>
<tr>
<th>Behavior Function</th>
<th>Average Score per Question</th>
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<td>Attention/Preferables</td>
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<tr>
<td>Escape</td>
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</tr>
<tr>
<td>Sensory</td>
<td>2</td>
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<tr>
<td>Pain Attenuation</td>
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Figure 2

FAST Tim

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<th>Average Score</th>
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</thead>
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</tr>
<tr>
<td>Escape</td>
<td>Moderate</td>
</tr>
<tr>
<td>Sensory</td>
<td>High</td>
</tr>
<tr>
<td>Pain Attenuation</td>
<td>Low</td>
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</table>
Figure 3

**FAST Dave**

![Bar chart showing average scores for different behavior functions: Attention/Preferables, Escape, Sensory, Pain Attenuation. The chart is labeled with the y-axis as 'average score per question' and the x-axis as 'Behavior Function'. The chart includes a legend for 'average score'.]
Figure 4

Jake Out of Seats Antecedents

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<th>Antecedents</th>
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<td>Item Rem.</td>
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<tr>
<td>Transition</td>
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<tr>
<td>Ignored</td>
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<tr>
<td>Instruction</td>
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</table>
Figure 5

Jake Out of Seats Consequences

# of occurrences

Consequences

- Attention
- Redirected
- Ignore
- Access

number of occurrences
Figure 7

Tim Wandering Consequences

# of occurrences

Consequences

Attention  Redirected  Ignore  Access

number of occurrences
Figure 8

Dave SIB Antecedents

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<th>Antecedents</th>
<th>Number of Occurrences</th>
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<tr>
<td>Transition</td>
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</table>

*Number of occurrences*
Figure 9

Dave SIB Consequences

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<td>Attention</td>
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<tr>
<td>Redirected</td>
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<td>Ignore</td>
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<tr>
<td>Access</td>
<td></td>
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</table>
Figure 10

**Functional Analysis Jake**

- novel therapist
- familiar therapist
- novel therapist
- familiar therapist

**Legend**
- **Blue**: Attention
- **Red**: Demand
- **Yellow**: Play

**Y-axis**: percent intervals of out of seats

**X-axis**: sessions

From sessions 1 to 12, the graph shows the percentage intervals of out of seats for different conditions and therapists.
Figure 11

Functional Analysis Time

seconds to first response (wandering)

sessions

novel therapist  | familiar therapist  | novel therapist  | familiar therapist

- Attention
- Demand
- Play
Figure 12

Functional Analysis Dave

novel therapist  familiar therapist  novel therapist  familiar therapist  novel therapist

percent intervals of SIB

sessions

Attention  Demand  Play

1  2  3  4  5  6  7  8  9  10  11  12  13