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Increasing task engagement in an individual with autism

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**Increasing Independent Task Engagement in an Individual
with Autism**

A thesis presented

by

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for the degree of

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**Increasing Independent Task Engagement in an Individual
with Autism**

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Abstract

A systematic replication of previous research by Leif et al (2008) evaluated the effects of prompts and DRA components on appropriate independent task engagement in a participant that engaged in high rates of noncompliance. Results extend previous findings that the use of prompts and DRA schedules increase appropriate engagement. Additionally, current study was able to pair DRA schedule with a timer which aided in increasing amount of time participant independently engaged with task.

Increasing Independent Task Engagement in an Individual with Autism

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Increasing Independent Task Engagement in an Individual with Autism

According to Lovaas, Newsom, and Hickman (1987), automatically reinforced behaviors are functionally autonomous in that they persist in the absence of social consequences. Some examples of stereotyped behaviors include body rocking, head nodding, hand flapping, and tapping objects. Self-injurious behavior (SIB) and aggression have also been found to be automatically maintained. The source of automatic reinforcement can be visual, tactile, or auditory.

Although varied forms of stereotypy may seem benign because they pose no physical threat to the individual or others, this type of behavior may be socially stigmatizing thus warranting effective treatment for its reduction. In a study conducted by Jones, Wint, and Ellis in 1990, results from a survey of 205 typical 14- to 15-year-old students indicated that particularly those with no prior history with handicapped individuals tended to report negative perceptions of an individual in a video who engaged in stereotypy regardless of whether the person engaging in the behavior was labeled as handicapped. This finding confirmed the need for effective strategies to reduce stereotypic behaviors in individuals with developmental disabilities.

Furthermore, stereotypy in individuals with developmental disabilities has been associated with impaired learning (Lovaas, Koegel, Simmons, & Long, 1973) and delays in social development (Koegel, Firestone, Kramme, & Dunlap, 1974). For this reason, a number of different approaches to treating automatically maintained behaviors have emerged in the literature. NCR, DRO, and DRA are three examples of reinforcement-based procedures that have been used to treat these behaviors.

Harris and Wolchik (1979) compared three different strategies to suppress automatically

maintained stereotypy. These procedures included time out, DRO, and overcorrection. Their findings across four participants demonstrated the DRO contingency to be the most ineffective. In fact, it sometimes led to an increase of the target behavior. By contrast, overcorrection yielded the most immediate and dramatic decreases in the rates of the target response. Time out was somewhat effective for some of the participants, but not significantly so.

In 1984, Fellner, Laroche, and Sulzer-Azaroff evaluated the effects of DRA, DRI, and response interruption on self-stimulatory behaviors for one participant. Their findings indicated that response interruption was necessary to suppress levels of responding and that different response topographies needed to be directly targeted before responding decreased. This suggests low generality across responses with such procedures.

Cowdery, Iwata, and Pace (1990) found a DRO contingency to be effective with one participant who engaged in automatically maintained SIB in the form of scratching. The researchers were able to suppress SIB by providing tokens for intervals free of SIB. They increased the DRO intervals from 2 min to 30 min with success across analog conditions and the participant's natural setting. However, collateral behavior emerged when reinforcement was not available. The final phase of the study also demonstrated that the participant's behavior under a DRO schedule could be controlled by tangible reinforcement only. An attempt to provide only social praise, which was more feasible to his caretakers, was ineffective in suppressing his SIB. Although this study was conducted with a single participant, the results suggested that SIB could be suppressed by the use of reinforcement. Subsequent studies extended this research by providing noncontingent access to reinforcement for individuals who engaged in automatically maintained SIB.

One method to suppress stereotypy is to identify an appropriate response that competes

with the automatically maintained response. However, a problem arises when arbitrary activities do not successfully compete with the target behavior. In 1997, Shore, Iwata, DeLeon, Kahng, and Smith assessed the preferences of participants for leisure items to potentially compete with automatically reinforced behaviors. In Experiment 1, the researchers demonstrated the effectiveness of providing an NCR arrangement in which leisure items assessed as highly preferred competed with automatically maintained SIB. The leisure items were continuously available because the target behavior, SIB, was also continuously available. However, providing continuous access to leisure items is not highly practical. Therefore, the researchers hypothesized that a DRO contingency could work in that leisure items would be provided to the participants contingent on the absence of the target behaviors. They tested this hypothesis in Experiment 2 and found the DRO contingencies to be ineffective in reducing rates of SIB.

In Experiment 3, Shore et al. (1997) manipulated response effort to measure at which point preference for object manipulation switched to SIB. Their results indicated that the leisure items competed with SIB when little to no effort was required to access the leisure items. Inversely, SIB competed with object manipulation when the response effort increased.

Using the maintaining variable that functions as the reinforcer for a response yields the best results in function-based treatments for socially maintained behaviors. It would be logical, then, to assume that the same would hold true for behaviors that are not sensitive to social variables. Hanley, Iwata, Thompson, and Lindberg (2000) conducted a study to identify the functional components of stereotypy as reinforcement for the occurrence of behavior that involved the manipulation of leisure items. Their results indicated that for two of their three participants who engaged in automatically maintained stereotypy, the suppressive effects of blocking alone were enough to reduce stereotypy and increase item engagement. For the third

participant, an additional component was necessary which involved setting up a DRA contingency in which stereotypy was delivered on an increasing schedule of object manipulation.

Procedures such as blocking and interruption may function as punishment in their suppressive effects. The word punishment suggests a long negative history with respect to its social acceptability. However, research has indicated that in some cases, it is ethically necessary to use punishment for reduction of problem behaviors when function-based treatments have failed or not yielded significant results. A review by Lerman and Vorndran (2002) offered an analysis of the dimensions and characteristics of punishment that are relevant to the most effective treatment of behavior disorders. Relative to using punishment as a treatment for automatically maintained behaviors, such as using blocking to treat stereotypy, the authors indicated the need to analyze a variety of factors in designing the treatment. Some of these factors included taking into account the rate or frequency of the behavior, the individual's prior history with punishment as treatment for the target behavior, other treatments that were attempted to reduce the targeted response, the schedule of delivery of punishment, and the utility of using conditioned punishers.

A procedure by Doughty, Anderson, Doughty, Williams, and Saunders (2007) was able to successfully bring an automatically maintained response under discriminative control of a conditioned stimulus. Their results also indicated that establishing a conditioned punisher eliminated or reduced the likelihood of common side effects of punishment such as the punisher becoming aversive.

Overcorrection is another direct intervention that has been used to decrease levels of stereotypy. Foxx and Azrin (1973) used overcorrection to reduce rates of object mouthing, hand mouthing, hand clapping, and head weaving. Overcorrection was compared to other suppressive

methods such as punishment, DRO, and a free reinforcement condition which consisted of a variable time delivery of reinforcement independent of the participant's behavior.

Overcorrection for mouthing consisted of an oral hygiene procedure which the therapist administered and was designed to counter the harmful effects of the mouthing behavior.

Functional movement training was applied as overcorrection for head weaving; this consisted of the therapist using his or her hands to restrict head movement when the participant began to head weave. For all participants, overcorrection yielded the most suppressive effects. Following treatment effects, the authors maintained reduced rates of self-stimulatory behavior by using a verbal warning that was paired with the overcorrection procedure.

Most of the interventions discussed, whether direct or indirect, have been effective to a certain degree in reducing stereotypy. The problem with indirect interventions is that they are only effective if the arbitrary reinforcer used can effectively compete with the maintaining reinforcer to which the therapist does not have access. Many individuals with developmental disabilities do not have appropriate alternative responses in their repertoires; therefore, noncontingent access to toys and other arbitrary reinforcers is unlikely to be effective.

Direct interventions can produce significant reductions in problem behavior. However, in applied settings, these methods may be difficult to implement or can result in undesirable side effects such as a decrease in appropriate toy play. A way to mitigate these effects is to identify ways to increase the effectiveness of indirect interventions, such as DRA. Prompting has sometimes increased the effectiveness of indirect procedures when it has been used to teach appropriate item engagement. Teaching appropriate leisure play can increase the effectiveness of reinforcement-based interventions that focus on the delivery of highly preferred toys and objects. Through repeated exposures, toy play may become automatically reinforcing.

Singh and Millichamp (1987) evaluated the use of verbal and physical prompts for teaching item engagement and social play. The authors used graduated guidance to prompt appropriate item engagement if the participant did not do so independently. Results of the study indicated that verbal and physical prompts were effective in the acquisition and maintenance of item engagement, and the use of prompts produced low levels of stereotypy as well as a decrease in inappropriate toy play. Stereotypy, which occurred at very high levels during baseline, decreased to low levels following intervention for item engagement.

Lindberg, Iwata, and Kahng (1999) evaluated several interventions for increasing item engagement and decreasing SIB, starting with less direct interventions and then adding more direct treatment components as needed. NCR was first used to provide continuous access to leisure items. Prompting, DRA, and response blocking or protective equipment were added singly as needed. Results of this study showed that more direct interventions, including response blocking and protective equipment, were necessary to decrease SIB to acceptably low levels. Furthermore, substantial increases of item engagement were obtained for only one of the two participants.

In an unpublished thesis study by Leif, Roscoe, Morrison, and Ahearn (2008), treatment procedures for increasing item engagement and decreasing stereotypy within the context of an ongoing single-item duration-based evaluation were assessed. Results showed that a combined prompting and reinforcement procedure effectively increased participants' item engagement. Use of a single-item duration preference assessment helped to identify effective leisure items that competed with stereotypy.

The purpose of the current study is to extend the research by Leif et al. (2008) by applying the same prompting and reinforcement procedures to a child who displayed difficulty

completing tasks due to automatically maintained interfering behaviors and noncompliance. Because of necessary modifications, we conducted a task assessment instead of a preference assessment with similar procedural parameters.

Method

Participant and Setting

Justin was a 6-year-old boy diagnosed with autism. He communicated vocally using three- to four-word phrases. Justin participated in the current study because of concerns with his excessive levels of motor stereotypy that interfered with daily activities in both leisure and task contexts. Motor stereotypy consisted of Justin flapping his hands in front of him or at his sides, out of context clapping, and object tapping.

Functional analysis and task assessment sessions were conducted in a quiet isolated room. Generality assessment was conducted in the student's classroom.

Dependent Variable and Operational Definition

For the purpose of this study, both motor stereotypy and appropriate task engagement were the initial dependent variables to be measured. However, when the study was initiated, very low to zero rates of motor stereotypy were observed during the analog functional analysis. Hence, only appropriate task engagement was measured and all other behaviors were categorized as noncompliance.

During the task and generality assessments, the dependent variable was appropriate task engagement. Appropriate task engagement was defined as the participant having functional physical contact with task materials with no more than 2 s of non-engagement elapsing.

Response Measurement and Interobserver Agreement

Occurrences of stereotypy and item engagement were measured using 5-s momentary-time sampling (MTS). FA sessions and a portion of the task assessment were videotaped and data were collected at a later time. However, due to staffing and time constraints, the remainder of the sessions was scored in-vivo. Data were summarized as percent occurrence by dividing the number of MTS intervals with the response by the total number of intervals in the session, then multiplying by 100.

IOA data were collected by a second observer either by watching video of sessions or by being present in vivo. IOA was determined by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. IOA data were collected during 31% of FA sessions, 30% of task assessment sessions, and 33% of generality assessment sessions. IOA was calculated as previously described. During the FA, IOA for motor stereotypy was 93% (range, 88% to 100%). During the task assessment, IOA for task engagement was 100%. During the generality assessment, IOA for task engagement was 100%.

Study 1- Functional Analysis

Procedure

A functional analysis (FA) was conducted based on the procedures described by Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994) to identify the maintaining variables of participant's motor stereotypy. During the FA, five conditions were conducted, and a multielement design was used. Sessions lasted 5 min, each condition was presented once per series of four sessions, and condition order was randomized within each series. All conditions required the presence of a primary therapist in the room and a second therapist to video record the session. The same primary therapist conducted all functional analysis sessions. A star

wand/pointer, marker, and plastic spoon were present during all sessions to provide opportunities for stereotypy because it was reported that stereotypy frequently occurred with items of this type.

Following the multielement phase, an additional no interaction session was conducted to verify and confirm that the behavior would persist and not extinguish in the absence of social consequences (Vollmer, Marcus, Ringdahl, & Roane, 1995).

Attention. This condition tested whether stereotypy was maintained by positive reinforcement in the form of attention. During the social attention condition, the therapist sat at a table with the participant. The therapist stated, “Sit here. I need to do some work.” The therapist oriented herself away from the participant and busied herself (e.g., read over some paper work) while remaining at the table. Contingent upon the occurrence of motor stereotypy, the therapist immediately provided attention by stating, “Stop that” or “Don’t do that” paired with brief physical contact. All other behaviors other than the target response were ignored.

Demand. This condition tested whether motor stereotypy was maintained by negative reinforcement in the form of escape from demands. Simple compliance tasks (“touch your head”, “touch your nose”, etc.) were included after a brief survey with the participant’s classroom teacher. Compliance tasks were chosen that had a high probability response rate and were in the participant’s repertoire according to the teacher’s report. During sessions, tasks were continuously presented in a random order. The therapist sat at the table with the participant and presented a vocal instruction every 15 s (e.g., “clap hands”). If no response was emitted within 5 s or an incorrect response was emitted, the therapist represented the vocal instruction and modeled the correct response. If no response was emitted within 5 s or an incorrect response was emitted, the therapist manually guided the participant to emit the correct response. Verbal praise was delivered for compliance. Compliance was defined as correct completion of the task before

the physical prompt was necessary. Contingent upon the occurrence of problem behavior, the therapist stated, “OK, you don’t have to,” and turned away from the participant for 15 s. After 15 s elapsed, the next demand was presented. If problem behavior occurred at the end of the break, a delay was not provided. All other behaviors other than the target behaviors were ignored.

Tangible. This condition tested whether behavior was maintained by positive reinforcement in the form of access to a tangible item. Prior to the beginning of each session, the participant was given access to a preferred leisure item for 1 min. At the beginning of each session, the leisure item was removed from the participant. Contingent upon the occurrence of problem behavior, the therapist gave the participant the leisure item and stated, “OK, you can have the toy back.” The participant was allowed access to the leisure item for 15s, and when the time elapsed the item was removed without further statements. All behaviors other than the target behavior were ignored.

No Interaction. This condition tested whether behavior was maintained by automatic reinforcement. During the sessions, the therapist and the participant sat at the table. However, no interaction or additional leisure items were presented. All behaviors, including the target behavior, were ignored.

Play. This condition served as the control. The therapist sat at the table with the participant, presented him with a variety of leisure items, and stated, “Here are some toys to play with.” Non-contingent social praise (“Nice playing!”) paired with brief physical contact was delivered every 15 s unless problem behavior occurred immediately before the scheduled delivery of praise. If this occurred, the delivery of praise was delayed by 5 s. If the participant

initiated social interaction with the therapist, she provided interaction for 5 to 10 s. Occurrences of problem behavior and other behavior were ignored.

Results

Figure 1 depicts functional analysis results for Justin. Motor stereotypy occurred at low levels across the attention, demand, tangible, and play conditions of the multielement phase of the assessment. Responding was differentially higher during the no interaction conditions. Because behavior was differentially higher in the no interaction phase compared to the other test conditions, it was hypothesized that Justin's motor stereotypy was maintained by automatic reinforcement. An additional no interaction session was conducted to ensure that behavior would persist in the absence of social consequences. Results showed that motor stereotypy persisted during this phase, providing further support that motor stereotypy was maintained by automatic reinforcement.

Study 2 – Task Assessment

Procedure

Following the functional analysis, a task assessment was conducted similar to the preference assessment conducted by Leif et al. (2008). Five task items (based on tasks from current and past academic objectives as determined by teacher's report) were presented singly during 3-min sessions. Task items selected represented a variety of different types of motor activities to prevent having the participant engage in the same task but with different materials. Each item was assessed three times during each phase of the treatment assessment: no prompt, prompt, and prompt with differential reinforcement of alternative behavior (DRA). During all sessions, the therapist and participant were seated side-by-side at a table. At the start of each

session, the therapist presented the task item and provided the participant with a verbal instruction to engage with the task (e.g., “It’s time to sort silverware”).

No Prompt. This condition determined baseline levels of task engagement. The therapist conducted the task assessment as noted above; however, no additional prompting or reinforcement was provided. All behavior emitted during the session was ignored.

Prompt. This condition evaluated the effects of an antecedent manipulation (prompting). During this condition, the therapist presented a vocal and physical prompt every 10 s, starting with 5 s, then 15 s, then 25 s, and so on, if the participant was not engaged with the task. The vocal prompt consisted of an instruction such as, “It’s time to do your work,” in a stern voice. To avoid reinforcing interfering behaviors not related to task engagement that were maintained by attention, physical prompts were minimal and only occurred when the participant was still within arm’s reach of the task and consisted of the therapist placing his hands on the task. If the participant was engaged with the item when a prompt was scheduled to be delivered, the prompt was withheld. All other behavior emitted during the session was ignored.

Prompt + DRA. This condition evaluated the effects of adding a DRA component with the prompting component. During this condition, vocal and physical prompts were delivered as in the prompt condition. In addition, a preferred edible (i.e., cookies) was delivered contingent on 10 s of continuous task engagement. The therapist delivered the cookie by placing a small piece into the participant’s mouth or directly in front of him. No verbal praise was delivered. An additional prompt was presented to signal when edible reinforcement would become available. This prompt consisted of the therapist counting aloud the seconds of continuous independent item engagement achieved. If the participant was engaged with the item for 10 continuous seconds, the edible reinforcer was delivered. If the participant stopped engaging with

the item before 10 s had elapsed, the therapist stopped counting. If the participant resumed item engagement before the next scheduled prompt, the number of seconds of item engagement achieved was reset and the therapist began counting at 1 s. If the participant did not resume item engagement before the next scheduled prompt, the therapist presented a vocal and physical prompt and began counting aloud the seconds of engagement from 1 s. This cycle continued until the end of the session.

Results

Figure 2 depicts the average percentage of task engagement and off-task behaviors across all task assessment items during each treatment assessment phase for Justin. Each bar represents the average percent occurrence of task engagement and off-task behaviors across the three sessions conducted with each item and across all items. During the first four phases (no prompt, prompt), levels of engagement were low to moderate with a slight increasing trend. Inversely, off-task behaviors were high but were on a decreasing trend. When the DRA component was introduced, off-task behavior dramatically decreased and task engagement increased. Returning to the prompt condition decreased levels of engagement back to rates seen during the no prompt conditions. A reversal to prompt + DRA replicated the results of the first prompt + DRA phase with a noticeable increase in task engagement.

Figure 3 depicts average task engagement across sessions for each task item presented during the task assessment for Justin. Each bar represents the average engagement during sessions for no prompt, prompt, or prompt + DRA phases for each task included in the assessment. During the no prompt condition, task engagement was low (below 50%) across all tasks. However, the range of task engagement across tasks was approximately 10-50%. Both tasks associated with sorting were around the 10% level whereas the other tasks ranged from 30-

50% engagement when no prompts were presented. A similar pattern is represented during the prompt conditions. During prompt conditions, levels of engagement increased; however, sorting tasks (13-17%) remained differentially lower than the rest of the tasks (20-55%). During the prompt + DRA condition, a notable increase in task engagement was observed across all tasks (89-100%).

The two tasks identified for Study 3 were cutting and name tracing. These tasks were chosen based on the levels of engagement during the no prompt and prompt conditions because these results indicated that there would be higher probabilities of success during fading procedures.

Study 3 – Treatment Generality Assessment

The purpose of Study 3 was to evaluate whether treatment effects from the prompt+ DRA conditions from Study 2 would generalize to the classroom setting. In addition, the durability of treatment effects was evaluated by increasing the duration of task engagement required for reinforcer delivery and by reducing the number of prompts. A procedural difference to be noted during this study compared to Leif et al.'s (2008) study was that a timer was paired with reinforcement during fading sessions. This strategy was added given that it would be appropriate in the context of task completion.

Procedure

A reversal and multiple baseline design was used and sessions lasted 5 min. Because all task items from Study 2 had high levels of engagement during the prompt + DRA condition, tasks for this study were chosen based on levels of engagement during the no prompt and prompt conditions, as this indicated a higher probability of success during the fading process. During sessions, the therapist and participant were seated side-by-side at a table. At the start of the

session, the therapist presented the task and stated a direction related to the task, such as, “It’s time to cut the lines on the paper.”

Baseline. This condition was identical to the no prompt condition conducted in Study 2. No prompting or reinforcement was provided, and behavior emitted during the session was ignored.

Prompt + DRA. This condition was identical to the prompt + DRA condition conducted in Study 2.

Prompt + DRA fading. During these sessions, the criterion for reinforcer delivery was increased and the counting prompt was faded. Before fading began, probe sessions were conducted to evaluate whether fading was necessary. Probes were also used to determine the reinforcement delivery schedule. The criterion for a successful outcome was one session with greater than 75% task engagement. If this criterion was met during probe sessions, fading was not conducted and criterion for reinforcer delivery was increased.

Probe 1. Probe 1 was similar to the prompt + DRA condition, except that the criterion for reinforcer delivery was increased from 10 s to 60 s of continuous independent item engagement. As a result, the therapist counted aloud the number of seconds that had elapsed until the criterion of 60 s was met.

Probe 2. Probe 2 was identical to Probe 1, except that the therapist no longer counted aloud the number of seconds that had elapsed with continuous item engagement. Additionally, the criterion for reinforcer delivery was increased to 2 min of engagement. At the beginning of the session the participant was told, “When the timer beeps, you’ll get a chip”. Subsequent probes increased criterion of reinforcer delivery to 3 min and 5 min respectively, 5 min being the terminal goal.

For this participant, prompt fading was not necessary; therefore, prompt fading procedures were omitted.

Results

Figure 4 depicts the results of the generality assessment. During baseline for cutting (top panel), task engagement was moderate and gradually began to decrease across sessions (40 – 26%). During the first prompt + DRA session, engagement immediately increased to 100%. Probes were consequently initiated and criterion for reinforcer delivery was increased to 1 min, 2 min, 3 min, and 5 min, respectively. Counting prompt was removed after the 1-min probe. During all probes, engagement remained at 100%. Upon returning to baseline conditions with no prompts, no reinforcement, and no timer, task engagement was initially still high (above 80%), but gradually began decreasing until reaching its lowest rate of engagement (36%). During the reversal to the prompt + DRA sessions (although no prompts were delivered), engagement immediately returned to high levels (95-100%).

The lower panel shows a similar pattern of task engagement when Justin was presented with the name tracing task. Baseline conditions yielded low rates of task engagement (20-50%). Prompt + DRA conditions produced high levels of task engagement (90-100%).

General Discussion

For the current studies, the participant was chosen based on reports that his automatically maintained behaviors interfered with independent task completion. A functional analysis was conducted to confirm that reported behaviors were maintained by automatic reinforcement. Although these behaviors did not occur during Study 2, the participant was included in the subsequent study because other behaviors were observed that interfered with independent task engagement and that also appeared to be automatically maintained given that no social

consequence was applied during sessions for other behaviors. Task engagement became the only dependent variable.

A task assessment evaluated the effects of prompting alone and prompting paired with contingent reinforcement. Results indicated that prompting alone resulted in increased levels of task engagement. However, reinforcement was necessary to increase task engagement to acceptable levels that would be useful in a classroom or home setting. Study 3 evaluated the generality of these findings by implementing treatment components in the participant's classroom setting. Additionally, maintenance properties were tested by fading prompts and increasing criterion for reinforcer delivery. Given that timers are a common tool used both in school and at home, a timer was also paired with reinforcement delivery during the generality assessment. The results of the generality assessment indicated the occurrence of both generalization and maintenance in that prompts could be faded immediately and task engagement remained at high levels when criterion for reinforcer delivery was gradually increased to 5 min.

This study was a systematic replication of a study by Leif et al.(2008) in which the participants' task engagement was increased and rates of stereotypy were decreased by using similar treatment components. For this study, several modifications had to be made in order to evaluate the effects of the prompt + DRA condition on independent task engagement. For instance, since preference was not a variable being measured, application of the treatment component was labeled as a task assessment instead of a preference assessment although similar session parameters were used for the task assessment. Consequently, only five tasks were assessed instead of eight.

Nevertheless, the implications of this study are several. These procedures may be useful in identifying task preference or difficulty. During the task assessment, although during the

DRA conditions there were no significant differences in levels of engagement, the no prompt and prompt conditions indicated a different pattern. During these conditions a hierarchy was observed in which engagement during the sorting tasks was differentially lower than during the other tasks. One explanation could be that the other tasks required more physical and motor engagement which may have affected the level of preference of the participant.

Another important implication is that these procedures may be applied in the training of independent activity schedules for students who have difficulty engaging in tasks due to interfering behaviors that may be automatically maintained. The task assessment yielded information about tasks in which the participant was more likely to engage with as well increased levels of engagement across all tasks with the use of a DRA schedule. The generality assessment indicated the utility of using a visual and audible cue (timer) to maintain treatment effects.

Although results of this study replicated those of Leif et al. (2008), there were some limitations to consider. First, only one participant was used for this study. Future research should evaluate treatment components across more participants. Second, the participant used for this study had a history with reinforcement schedules and the use of timers which may be an explanation for the rapid rate of acquisition when the treatment components were added, namely, the DRA and the use of the timer. Acquisition may be slower for individuals without this history.

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Figure Captions

Figure 1. Functional analysis results for Justin.

Figure 2. Percent occurrence of task engagement and off-task behaviors during each treatment condition of the task assessment.

Figure 3. Percent occurrence of task engagement across each task presented during the task assessment.

Figure 4. Percent occurrence of task engagement for cutting and name tracing across phases of the treatment generality assessment.

Figure 1.

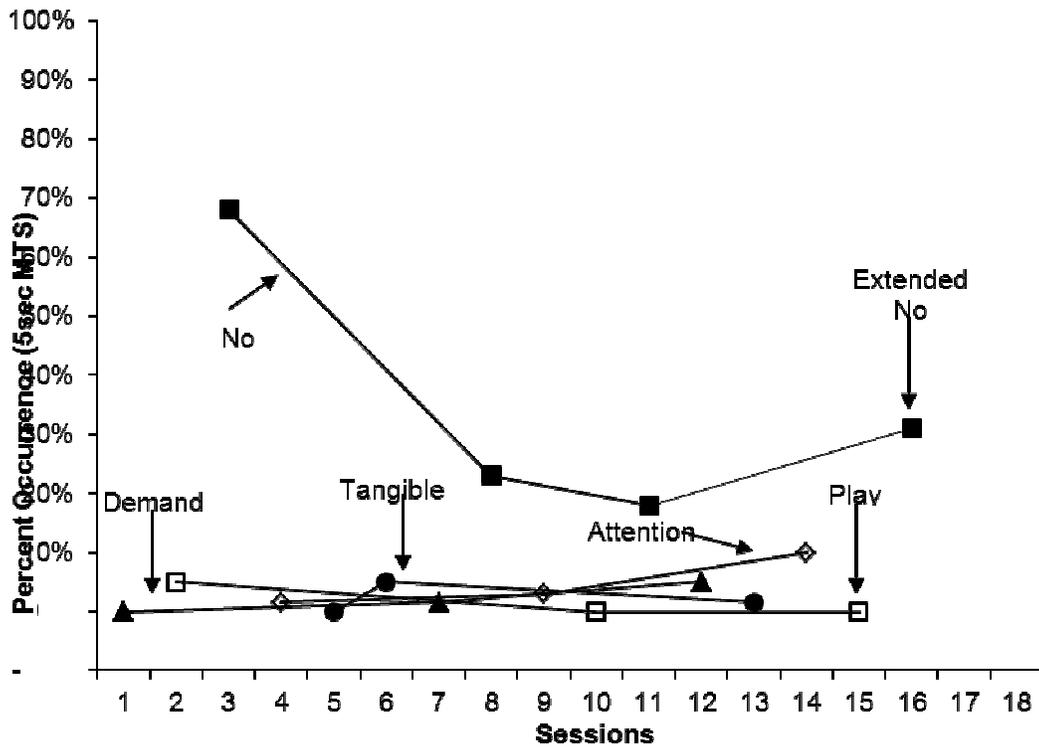


Figure 2

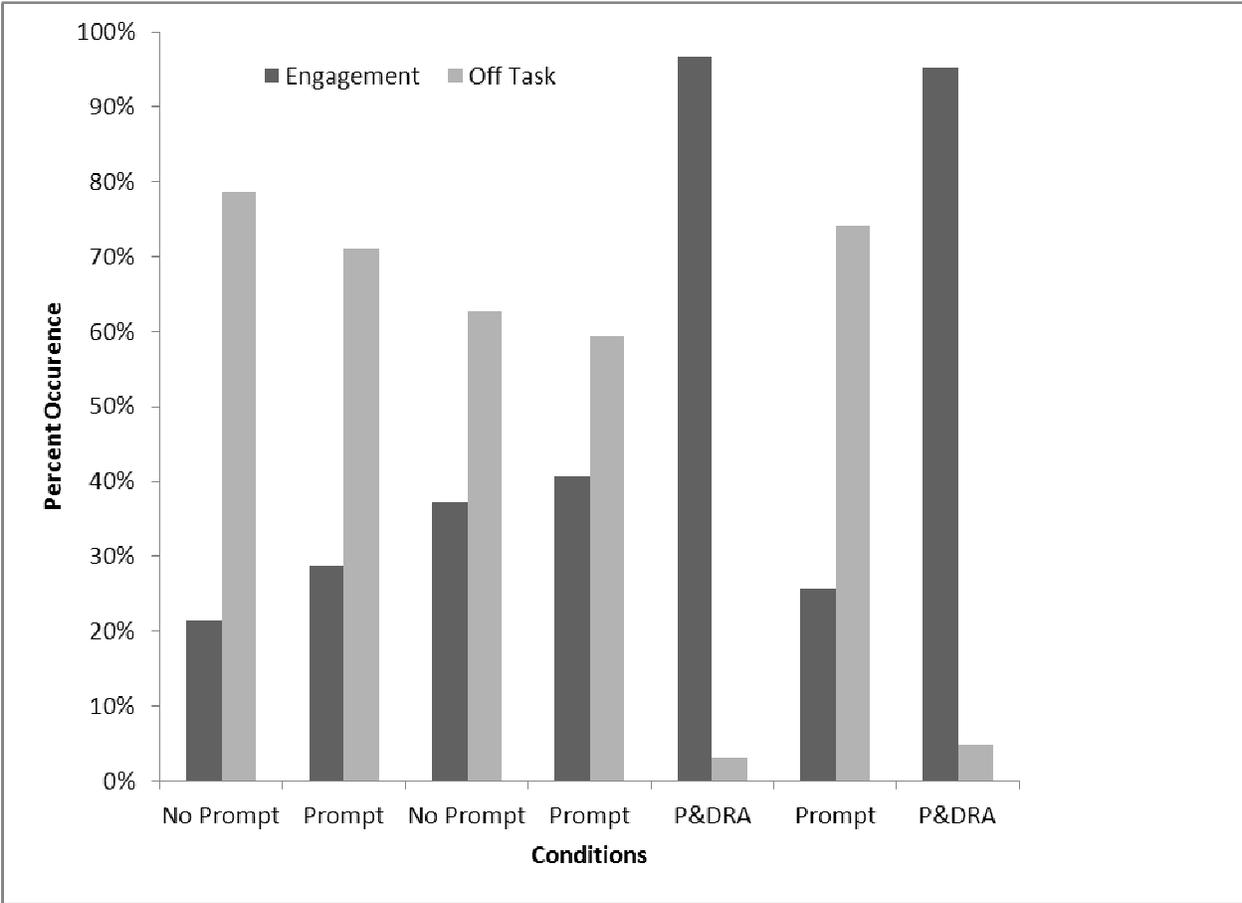


Figure 3

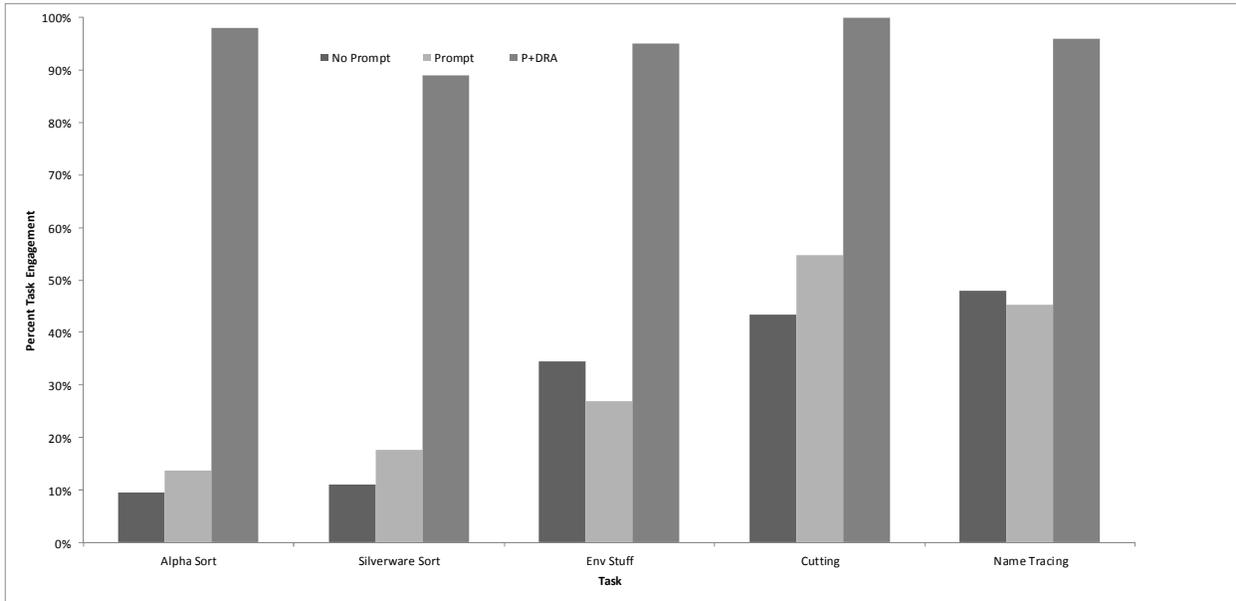


Figure 4

