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Evaluation of Concurrent Operant Preference Assessment
For Identification of Social Consequences in
Adolescents’ Daily Living Skills in a Residential Setting
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Abstract

There are a growing number of youth in residential care who are dually diagnosed with a mental health disorder and developmental delay. By using function-based interventions, individuals’ problem behaviors may be addressed without requiring a higher level of care. An alternative strategy to a functional analysis is to use a concurrent operant preference assessment (COA) to determine the individual’s preferred consequences and allow appropriate interventions to be developed based on the preferred consequence and potential function of the challenging behavior for the individual. The clinical utility of a COA procedure to increase latency to compliance with daily living skills with youth dually diagnosed in a residential setting was evaluated using a multiple baseline across subjects design. Results showed that the use of potential reinforcers determined by the COA increased compliance with daily living skills with all 5 participants. Additionally, these skills were maintained at a 2 week probe.
Introduction

Children with Developmental Disabilities in Residential Treatment Settings

Nearly 66,000 youth resided in residential treatment settings in the United States in 2003 (Warner & Pottick, 2003). This trend has been growing, with many states turning to residential treatment settings as an alternative to treating maladaptive behaviors in more traditional settings such as school or in-home care (Warner & Pottick, 2003). Children and adolescents are often placed in these residential treatment settings to decrease their aggression, non-compliance and other maladaptive behaviors, and with the objective to return them to a lower level of care in the community or home setting.

Of those individuals in residential settings, it has been estimated that up to 20% in any given state in the U.S., have a developmental disability that requires out-of-home assistance to maintain appropriate behaviors, conduct vocational skill training, and teach daily living skills (Child Welfare League of America, 2010). According to the American Association of Intellectual and Developmental Disabilities (2012), a developmental or intellectual disability is a significant limitation affecting intellectual functioning and adaptive behavior. This limitation originates before 18 years of age and covers many everyday social and practical skills. Those individuals with developmental disabilities may also have an intellectual disability or delay in learning, and/or difficulty applying that learning in other settings (Fletcher, Loschen, Stavrakaki, & First, 2007). Although individuals with developmental disabilities may encounter specific challenges that will require additional assistance, they can still enjoy a full and active life.
In 2008, government funding from the Individuals with Disabilities Education Act provided services for 2,962,265 children and adolescents ages 6 to 17 years in the United States (The National Early Childhood Technical Assistance Center, 2010). School systems typically do acceptable work in educating these individuals, leading to less than 1% of the individuals who need the out of home assistance of a residential setting (The National Early Childhood Technical Assistance Center, 2010). This low percent illustrates that the majority of school aged youth are educated in a community setting on a routine basis. However, when a developmental disability appears comorbid with a mental health diagnosis, more supports often are needed for that individual. A mental health disorder is defined as a condition that disrupts a person in areas such as thinking, feeling, mood, ability to relate to others and daily functioning. These areas of disruptions may result in a decreased ability to cope with daily demands in the person’s life (National Alliance on Mental Illness, 2011). Mental health disorders may include a wide variety of conditions, such as bipolar disorder, depression, anxiety disorders or schizophrenia.

Individuals with intellectual disabilities (ID) are 2 to 4 times more likely than the general population to experience a mental disorder (Fletcher et al., 2007). It has been estimated that one third or more of all people with ID have significant behavioral disorders (Fletcher et al., 2007). It is this population of individuals with dual diagnosis that the current research concerns.

**Challenges in Treatment with Individuals with Dual Diagnosis**

Individuals with dual diagnoses are especially difficult to treat because of the challenge in addressing both the mental illness symptoms as well as teaching new appropriate skills to manage delays (Wallander, Dekker, & Koot, 2003). It is often
unclear whether the individual’s behavioral and communication concerns are the result of learning deficiencies, mental illness or comorbid developmental disability (Vostanis, 2007). The Diagnostic Manual- Intellectual Disabilities supplements the DSM-IV and guides clinicians in the diagnosis of mental disorders with individuals with developmental disabilities. Unfortunately, people with ID who exhibit psychiatric problems are often denied services or receive inappropriate treatment because of a lack of services designed to treat this population (Fletcher et al., 2007). Consulting clinicians are not always able to decrease all individuals’ problem behavior. Residential treatment is often suggested when these behaviors become too much to handle in the home environment (Borrero, Vollmer, & Borrero 2004; Everett, Olmi, & Edwards, 2007). Individuals in residential treatment settings may receive less clinical services due to the high case loads of mental health counselors serving this population (McPherson et al., 1998).

There are few alternatives for those individuals who need additional support beyond the structure and staffing of community group homes, especially for those exhibiting aggression or other dangerous behaviors (Avery, 2000). Individuals displaying dangerous behaviors are commonly removed from the community or residential treatment setting and placed in a higher level of care (e.g., psychiatric hospitals or diagnostic units) for diagnosis and treatment. This change in residence may disrupt the individual’s training and development (e.g., learning social skills) and add to their problem by removing relationships that were beneficial in that environment (Dozier et al., 2006).
Instead of changing the individual’s residence to a higher level of care (e.g., home to residential treatment facility or residential treatment facility to a hospital setting), an efficient and nonintrusive assessment can be implemented to target their precursor behaviors to aggression, such as non-compliance (Dozier, Vollmer, & Borrero, 2007; Romaniuk, Miltenberger, & Conyers, 2002). Treatment to decrease the individual’s precursor behaviors can be designed while the individual remains in a lower level of care, or even home environment, deeming higher care placement unnecessary.

Causes of Problem Behavior

There are a number of reasons an individual may engage in problem behavior. One reason may be that the individual is engaging in the behavior as a form of communication (Carr & Durand, 1985). The individual may engage in a behavior to “get” something (i.e., positive reinforcement) or have something “removed” (i.e., negative reinforcement) immediately after that behavior. Positive reinforcement occurs when an individual behaves in a certain way, and an immediate consequence is delivered that makes the behavior more likely to occur in a similar situation (Cooper, Heron & Howard, 2007). Attention from a caregiver or a tangible, such as food or a toy, are examples of positive reinforcers, which are objects or events that increase the probability of behavior (Cooper et al., 2007; Kodak, Northup & Kelley, 2007; Piazza et al., 1999).

Negative reinforcement is when something aversive is taken away or avoided after an individual’s behavior and the behavior is more likely to happen again. For example, this may be the case when an individual screams and math work is taken away, such that the person screams more often in similar future situations.
Assessment Procedures

Functional behavioral assessment refers to a variety of procedures used to determine what is maintaining or reinforcing the individual’s problem behavior (Cooper et al., 2007). By studying the individual’s interactions with the surrounding environment, which may include people, objects and routines, many problem behaviors have an identified cause. Types of functional assessments include descriptive functional assessment, observational assessment, and functional analysis.

Descriptive functional assessments, or structured evaluations of the behavior, are used to indirectly identify the possible function of problem behavior by asking others in the environment about the behavior (e.g., surveys, questionnaires, and rating scales). An example of this is the Questions about Behavioral Functioning (QABF) (Matson, Bamburg, Cherry, & Paclawski, 1999). This tool breaks down the individual’s behaviors into categories of possible maintaining variables (e.g., social, escape) by asking about antecedents and consequences surrounding the behavior. Conducting more than one type of assessment (convergent validity), or one assessment with more than one observer (inter-rater reliability) will help to identify observer bias and other errors in measurement (e.g., poor behavioral definition, cumbersome recording procedures, etc.).

Conducting these descriptive functional assessments is a good place for the clinician to start because of the ease of evaluation and time efficiency in conducting it. However, sometimes these assessments may identify that the individual’s problem behaviors are controlled by multiple purposes, or functions, which warrants further evaluation (Matson, Bamburg, Cherry, & Paclawskyj, 1999). Additionally, a weakness of descriptive assessments may be that invalid information may be supplied by the
informant, due to memory errors or recent occurrences of problem behavior, making the measure more subjective (Horner, 1994).

An alternative to depending on informant memory is to observe the individual’s behavior in the natural environment. Observational functional assessment can be structured by using the Antecedent-Behavior-Consequence (ABC) format (Cooper et al., 2007). Using an ABC format, the observer writes down the individual’s behavior being studied (Behavior), along with what happened right before it (Antecedent) and right after the occurrence of the behavior (Consequence). Patterns in the occurrence of the individual’s problem behavior in relation to its antecedents and consequences can be identified after observing the behavior across multiple sessions. This observational functional assessment approach may also identify idiosyncratic aspects of the environment that are correlated with the occurrence of the problem behavior, such as other people who are present or instructions presented to the individual. Camp, Iwata, Hammond, and Bloom (2009) compared antecedents to consequences, and determined that both are equally as likely to identify the function of problem behaviors.

There are still pitfalls associated with this type of assessment. Observational functional assessments that compare antecedents and consequences are only 57% as accurate as a functional analysis, an experimental manipulation of environmental conditions (Camp et al., 2009). It is hypothesized that this may be because teachers and caregivers do not want to provoke the individual’s problem behavior and so those behaviors are not seen as frequently in the naturalistic environment as much as a clinical setting (Camp et al., 2009). Observational functional assessments also have pitfalls such as not taking into account distal information and setting events that are not seen in the
environment at the current time (Cooper et al., 2007). Additionally, ABC charts and surveys may have low validity when the function of behavior is difficult to pinpoint (i.e., when there is no identified pattern of antecedents or consequences).

A more accurate way to assess the function of a behavior is a functional analysis (FA). An FA consists of an experimental manipulation of the variables that maintain an individual's problem behavior (Cooper et al., 2007). Typically, a functional analysis involves conducting conditions to assess whether the individual's problem behavior is controlled by: (a) positive reinforcement such as receipt of attention or tangible items; (b) negative reinforcement such as escape from demands placed on the individual; or (c) automatic reinforcement or consequences that are not dependent on social factors.

During a functional analysis, specific antecedents and consequences for the individual's problem behavior are presented in a controlled setting. These conditions are conducted using a research design to rotate through the multiple conditions (i.e., ABAB or multielement). The individual's problem behavior is then recorded during each condition. For example, during an “attention” condition, the individual will be given brief attention by the teacher (e.g., eye contact and saying, “No, do not do that”) immediately after each occurrence of the problem behavior; otherwise no attention is provided.

During the “escape” condition, a task demand is presented and the task is removed immediately following the individual’s problem behavior. The functional analysis also includes a control condition, in which non-contingent attention and tangibles are available for the individual. The condition in which the participant engages in the most problem behavior reflects the reason or function for the child’s problem behavior. In the case presented above, if the child emitted more problem behaviors in the attention
condition compared to the demand or control conditions, the reason, or function of the behavior is attention positive reinforcement (Cooper et al., 2007).

Functional analyses have been used in hundreds of clinical studies and the results of this assessment have led to the design and implementation of successful treatments (Camp et al., 2009; Romaniuk et al., 2002; Roscoe et al., 2008). Functional analysis serves as the gold standard against which other assessment alternatives are evaluated (Cooper et al., 2007). A combination of descriptive assessments such as teacher/caregiver survey or observational methods such as ABC charts can be combined with a functional analysis to pinpoint the possible causes of the individual’s problem behavior. In this way, many behaviors that seem to be “out of the blue” have an identified function.

A functional analysis approach also has its limitations. There are sometimes ethical concerns associated with this analysis. By evoking the problem behavior, the assessment process may temporarily strengthen the individual’s problem behavior to unacceptable levels. A functional analysis should be done very carefully and with safety supports for the individuals involved. Also functional analyses conducted in a clinical setting may not capture the idiosyncratic variables present in the individual’s natural environment. For instance, Kuhn, Hardesty, and Luczynski (2009) found that in some situations, it may be the people in the environment who affect the level of the individual’s problem behaviors. Roscoe et al. (2008) were able to identify that, for some situations, merely what leisure items were present in the room increased or decreased certain behaviors. Functional analyses also may be very difficult to conduct for some behaviors that occur at a low rate with a high intensity (Kahng, Abt, & Schonbachler, 2001). A functional analysis may not be able to be implemented in applied or home settings where
appropriate supports are not available to keep everyone safe during it (Cooper et al., 2007). This is problematic because without determining why an individual is engaging in a behavior, it is difficult to design an effective intervention. An intervention that is not addressing the function of the problem behavior could be considered a waste of time and may worsen the individual’s problem behavior.

**Rationale for Function-Based Treatment**

Once a function is identified for the individual’s problem behavior, an appropriate (function-based) intervention can be developed by using this identified function as a potential reinforcer delivered following a desired behavior. Arbitrarily choosing a consequence for a target behavior may not yield as much success as a function-based intervention (Vollmer & Iwata, 2002). A clinician needs to identify the function of the behavior, and design a treatment protocol around this finding.

**Treatment of Problem Behavior**

Results from a functional analysis will lead to a function-based treatment plan to decrease the individual’s problem behaviors through identification of reinforcers maintaining this behavior. One way to decrease problem behaviors is through differential reinforcement. Differential reinforcement involves providing reinforcement for the occurrence of a behavior other than the problem behavior while withholding reinforcement for the problem behavior. Differential reinforcement is used to increase the individual’s desirable behavior while simultaneously decreasing problem behavior (Vladescu & Kodak, 2010). The use of differential reinforcement is a common treatment method for behavior change. For example, if the individual is engaging in a problem behavior such as running around a classroom, then the child would be reinforced every
time s/he displays an incompatible behavior (i.e., sitting quietly in their seat), while no reinforcement is given when the child displays the problem behavior.

Vladescu and Kodak (2010) evaluated early intervention (EI) programs that used differential reinforcement and prompting methods when teaching skills to children. This review stated that differential reinforcement should be especially considered if the individual engages in some amount of correct responding during baseline conditions (i.e., the skill needs to be increased, not learned) (Vladescu & Kodak, 2010).

While reinforcing an appropriate behavior, a differential reinforcement procedure also entails extinction of the individual’s problem behavior. Withholding reinforcement for a previously reinforced behavior is extinction, which results in the behavior decreasing in future similar situations (Cooper et al., 2007). For example, when a child tantrums in a supermarket and is given candy and his behavior increases on future trips, his behavior is positively reinforced. Extinction is when the parent no longer gives the child candy when in that situation and the probability of behavior decreases. Thompson, Iwata, Hanley, Dozier, and Samaha (2003) state that extinction is one of the most effective intervention techniques used in applied behavior analysis to decrease behavior. Extinction has produced the most reliable and consistent results, compared to other problem behavior reduction techniques, and is especially effective when combined with a teaching component where a replacement behavior for the problem behavior is reinforced (Hagopian, Fisher, Sullivan, Acquisto, & LeBlanc 1998).

There are a number of challenges when using extinction in an applied setting however, the individual’s behavior may get worse before it gets better (Cooper et al., 2007). The child in the store will most likely scream louder and longer because every
other time, when she has a tantrum she received candy. This temporary increase in behavior is called an extinction burst and can be very dangerous for those individuals engaging in aggression, self-harm, or other behaviors unsafe to themselves or others.

Research has indicated that extinction bursts are not as common as once thought. In one analysis of past research it was found that an extinction burst occurred with more than 50% of the cases in an applied setting when extinction was used as the sole treatment (Lerman, Iwata, & Wallace, 1999). However, this number is decreased significantly to only 15% when extinction is combined with other procedures such as differential reinforcement (Lerman et al., 1999).

Extinction is commonly used as an intervention for escape maintained behaviors where the individual’s problem behaviors are negatively reinforced by getting out of an aversive task. An example of a negatively reinforced behavior is a child yelling to get sent out of the classroom and, as a result, the individual does not have to do math work. An escape extinction intervention would be to no longer take math away when the child is yelling. By implementing extinction for the individual’s problem behavior while reinforcing a desirable behavior, problem behaviors can decrease while increasing a positive skill.

**Concurrent Operant Preference Assessment**

Although the most effective way to assess problem behavior is through a functional analysis, this is not always feasible (e.g., unsafe to provoke behaviors in the environment). One possible way to avoid these dangers of evoking the problem behavior is to use a concurrent operant preference assessment (COA) (Berg et al., 2007). This COA procedure is used to compare the individual’s social preference of tangibles,
attention and escape from demand conditions in a paired fashion. With COA many of the conditions present in the functional analysis (attention, tangible, escape from demands) to test potential reinforcers, are offered simultaneously to the individual to choose from while not applying the potential antecedent for the problem behavior (e.g., removal of attention). For the COA assessment, an individual chooses between two areas of the room- each side housing a different potential reinforcer (i.e., attention from the teacher or a preferred toy). The individual is told to choose a side where s/he would like to go and that the side can be changed at any time. The percent of time the individual allocates to each location is then recorded and ranked by the researcher to establish a preference hierarchy. It is proposed that identification of highly preferred items may correspond to effective reinforcers (Fisher et al., 1992). An individual who consistently chooses a condition where a tangible, such as a videogame, is presented may work for this item in other situations making it a possible reinforcer. Berg et al.'s (2007) research indicated similar results were gained from COA using social conditions designed to test the same conditions as a functional analysis for 3 out of the 4 individuals. In other words, if the functional analysis results indicated an attention seeking function for the behavior, the COA also indicated the most frequently chosen condition by the individual to be attention. This COA procedure may provide reliable results without putting the child or staff in danger of provoking the client's problem behaviors.

There are limitations to the COA procedure however. According to Berg et al. (2007), although the individual chooses a condition this may not necessarily be what is reinforcing the child's problem behavior. For instance, a child chose sitting with his teacher over sitting alone, however still engaged in problem behaviors during the
assessments. Additionally, levels of engagement with activity or item during the condition may need to be considered (Berg et al., 2007).

**Focus of Current Study**

The purpose of the current investigation is to examine the clinical utility of conducting a concurrent operant preference assessment (COA) of social reinforcers for treatment of non-compliance by adolescents who are dually diagnosed. This investigation furthers current research literature by evaluating the use of concurrent operant preference assessment in a residential setting with five adolescents with developmental disabilities.

In this investigation, a concurrent operant preference assessment was used to identify a potential reinforcer for five individuals. The individual’s most preferred social choices, based on the results of the concurrent operant preference assessment, was then delivered immediately when that individual engaged in daily living skills, such as chores or homework. Berg et al. (2007) suggests that to date, conducting concurrent operant assessments with this population, to identify reinforcers to increase daily living skills has not been conducted. Applying research to practice is essential for effective interventions for individuals in residential placements. Improper procedures used in residential treatment settings may waste valuable time during an intervention, and limit individuals’ access to community activities due to their problem behaviors. By identifying potential reinforcers to increase individuals’ compliance with daily living skills, appropriate replacement behaviors can be taught to increase quality of life in current settings. It was hypothesized that identification of a potential reinforcer through use of
COA will increase participants’ compliance with engaging in the daily living skill, compared to that during baseline conditions.

Method

Participants

This study involved five residents at an Intensive Support Unit (ISU). This co-ed residential alternative houses eight youths with a dual diagnosis, who could not be served in other settings due to engaging in aggression, non-compliance with medicine and other dangerous activities. All participants have a developmental disability and other mental health disorders. Individuals ranged in age from 14 - 19 years, with 3 males and 3 females involved in the study. These participants were at various points of their treatment in the ISU. Staffing in this unit ranges from 6 to 8 staff per shift, with many of the individuals requiring one-on-one services.

All participants were at the ISU for at least one month. Medications were held constant throughout baseline and intervention phase. In the case that the clinical team decided that a medicine change needed to occur, this was provided and the individual would have been taken out of the study at that time. All participants had been engaging in non-compliant behavior during at least one aspect of their daily routine, as documented by residential staff in their daily logs (e.g., completing a chore, homework or laundry).

Parental written informed consent (see Appendix A) and participants’ assents (see Appendix B) were obtained at the beginning of the study. Parental consent was obtained in person as well. Child assent procedures entailed a clinician at the agency who is not directly involved in the child’s day to day treatment decisions verbally explaining the
COA use with Daily Living Skills

procedures to each individual. Any questions by the participants or parents were answered at this time.

Although there were originally six participants one participant was dropped from the study (Participant B). Due to the fact that the ISU is a short term stabilization unit, this participant moved out before the treatment phase was implemented. For this same reason of moving on from intensive treatment, a generalization probe was unable to be completed for participant A, however the baseline and treatment phases were still included. Due to the nature of the applied setting, participants C and E were not able to be started until session 14, but continued under baseline conditions for the required stability criteria before moving to the treatment phase.

Procedure

A multiple baseline across participants research design (Johnston & Pennypacker, 2009) was used to assess the effect of treatment based on the COA results on the latency of the individual initiating a specific daily routine task. Initially, baseline conditions to measure task compliance were in effect for all participants (see baseline procedures described below). Following stability in the behavior, as shown by three data points either stable or in the opposite direction to treatment, the first individual was taught to complete the task (i.e., completing a chore), using the consequence identified by that individual’s COA. Then, the next individual’s COA assessment and treatment was implemented once stability in the data was achieved with the first individual’s behavior. The second individual’s treatment phase occurred six sessions following implementation of treatment with the first participant while the third participant’s target behavior continued under baseline conditions. Lastly, the third participant received treatment once
stability in the data occurred, following the session after the previous participant’s change to treatment conditions. A treatment effect was noted if a decrease in latency to task initiation occurred once treatment was implemented compared to baseline levels across participants. Follow up observations were collected to track compliance after two weeks after the intervention was finished, by the researcher in the milieu setting.

To identify the target behavior, or specific compliance behaviors taught, an assessment of social validity was given to the staff members working with the identified individuals prior to the COA procedure. This procedure determined which tasks were most likely to evoke non-compliance throughout the individual’s daily routine (see Appendix C). Measures of social acceptability are important to ensure that the compliance behaviors taught are applicable to the individual’s life.

Additionally, the participant was given a paper assessment consisting of pictures of five tasks (e.g., vacuuming, washing dishes), faces (happy, neutral and angry), and short words to determine their desire to complete a task (see Appendix D). The individual was then asked to circle the face that matches if they like, dislike or don’t care about doing each task. The results of these assessments (social validity from staff and participant paper preference rating) determined which skill was assessed and targeted with that particular individual for the duration of the study. Targeted skills were those that were rated “rare” (rarely completed without support) by staff (0-2 on the assessment scale), as well as a neutral or frown face as rated by the individual.

Pre-assessment measurements of non-compliance were collected after the targeted tasks were identified. Antecedent-Behavior-Consequence (ABC) forms were completed
by the investigator during baseline observations in the natural environment (see Appendix E). This procedure was used to possibly identify any idiosyncratic stimuli in the individual’s environment affecting the individual’s compliance, such as other clients, specific staff who make requests, or unit noise level.

Next, baseline procedures entailed measuring non-compliance (defined as not initiating the task within 10 minutes of staff presenting the request) or the latency in seconds from the time the researcher presented the request to complete the task until the individual initiates that task. A script was used to deliver the request by the staff to the individual to initiate the task (antecedent), “(Individual’s Name), it is time to (state targeted request).” Staff were asked by the researcher to request the task immediately prior to the trial. Timing stopped once the individual initiated the task or reached 10 minutes of non-compliance. This measurement was conducted a minimum of three times, on different days at the same time of day (e.g., 4:00 each day) to ensure accurate representation of baseline levels of compliance. During baseline procedures, the researcher delivered minimal verbal praise, as they would receive in everyday routine (e.g., “Thank you for doing that”) following the participant’s compliance and a consequence of merely returning to evening routine and activities following noncompliance (not initiating the task within 10 minutes of the request). The participant’s compliance with initiation of the task in less than 2 minutes over 3 sessions resulted in discarding that task and replacing it with another task rated by staff to be rarely completed.
Identification of a Preferred Stimulus through Use of a Concurrent Operant Preference Assessment

A concurrent operant preference assessment (COA) was conducted with each individual to identify his/her stimulus preferences. The participant was brought to the entrance of a room containing two tables. All items and interactions presented for these choices were for events or stimuli the participant had already been exposed. The individual had shown preference for in their daily routine, as reported by staff upon inquiry (e.g. “What is a highly preferred tangible/ staff member?”). Items on or at these tables were rotated according to which conditions were being tested (see Appendix H). The individual was told “You can have ___ (e.g., staff attention) ___ at this table or you can ___ (e.g., play with a toy) ___ at this table. You can switch whenever you want to.” Each consequence selected by the participant was delivered or in effect for 5 minutes. The “attention” condition consisted of the individual sitting at a table, while talking to a preferred staff member. The “tangible” condition consisted of the individual sitting at a table, while having access to one to two preferred items (e.g., MP3 player, computer, or movie). The “escape” condition consisted of the individual sitting at a table, without a worksheet on it and the individual was told “you can sit here while you take a break instead of doing the worksheet” as an alternative to the other condition (tangible or attention - both with a neutral preferred task). Each of these conditions was paired with each other and counterbalanced in terms of location, as in Berg et al.’s (2007) study, such as tangible condition versus attention condition, attention condition versus escape and so on. Conditions at the tables were rotated (i.e., on the left versus right side) throughout the assessment and each pair of choices was presented 3 times, for a total of 9 trials (see...
Appendix F). The total time the participant spent at each table on each trial was measured. For example, the individual would be asked if they would like to "talk with staff at this table (attention) or watch a movie at that one (tangible)." Trials were 5 minutes in duration. The timing was started once the individual chose a table by sitting down. The researcher recorded when the individual switched tables. The conditions were then ranked by the researcher from most to least based on the total amount of time across all trials the individual allocated to each condition.

**Treatment Condition and Validation of the COA**

Treatment was based on the results of the COA. Attention as a preference for individuals was identified by the most time spent in the attention condition compared to the other conditions. During the treatment phase, these individuals received a consequence of "time with preferred staff" for completion of their identified task.

Tangibles as a preference for individuals was identified by the most time spent in the tangible condition compared to the other conditions. During the treatment phase, these individuals received a consequence of time with a preferred item following initiation of the identified task. Escape as a preference for individuals was identified by the most time spent in the escape condition compared to the other conditions. During the treatment phase, these individuals received a consequence of escape from another aspect of routine for completion of the identified task during the treatment phase.

Based on the COA results, an intervention was developed to address the targeted task identified in the social validity survey delivered to staff. The consistent prompt used was "*(Individual's Name)*, it is time to *(state targeted request)*. When you are done with
that, you can (state what is being earned).” The individual was also be given a visual, showing them the option (i.e., if the individual was working for computer time, he was shown the computer).

Delivery of the individual’s preferred consequence was dependent on initiation of the activity. Completion of the activity was not used because of the developmental level of the individuals as well as safety concerns associated with problem behaviors such as aggression. For example, if the task was to “clean the kitchen” this individual would still need assistance with sharp knives and cleaning chemicals, as specified by funder regulations.

Criteria for success and termination were established. If the individual’s latency for compliance did not decrease after 10 sessions, this intervention was discontinued and considered unsuccessful. The goal of the intervention was met once the individual reached a latency of less than one minute to initiate the task. The treatment phase was continued, using the same consequence, until the data reached stability.

Maintenance

A follow up session to assess whether compliance with the target request was conducted two weeks after the end of the treatment trials to measure generalization or retention of the participant’s compliant behavior. The follow up was done by the researcher requesting the individual to complete the target task, during typical daily routine while timing the latency between presentation of the request and initiation of the task. A latency time for the participant’s compliance less than the average time to complete the task during baseline was considered successful.
Social Validity of the Outcome of Treatment

A second social validity survey was completed by staff to determine the likelihood of the participant to complete the targeted task after the intervention (see Appendix C). The results of the social validity before the intervention versus after the intervention were compared to assess the staff opinion of the intervention success.

Procedural Reliability

Procedural reliability was measured by two researchers independently observing presentation of requests with staff, along with delivery of consequences when in the treatment phase. The script of request was: "(Individual's Name), it is time to (state targeted request). When you are done with that, you can (state what is being earned)." Observers recorded whether this script was followed for all sessions. A percent reliability score was determined by dividing the number of times the script is followed by the total number of trials, multiplied by 100. The procedural reliability score for this research was 93.5%.

Interobserver Reliability

Interobserver reliability was collected by two observers independently timing latency of the participant's response to the request to initiate the targeted task. Interobserver reliability was calculated by counting the number of seconds the two observers agree and dividing by the number of agreements plus disagreements, then multiplied by 100 (Matson, 2009).
Inter-observer reliability (IOA) was collected for 31% of the trials, including the generalization probe across all participants. IOA ranged from 97%-100%, with a mean of 99.2% (see Table 4).

**Data analysis**

The baseline and treatment data for each participant’s target behavior during each trial was collected by the researcher and an observer over 30% of trials. Each participant’s latency until initiation of the task across trials was graphed.

The data were graphically analyzed in a multiple baseline across participant design. The introduction of treatment sessions was introduced in a staggered manner and any changes in trend, level, and variability between phases was noted. Additionally, overlapping data points were noted between baseline and treatment phases.

**Results**

The COA was useful at identifying consequences used to decrease latency completing daily living skills when asked, with five adolescents with dual diagnosis. Compared to baseline measures, latency in initiation of task for each participant decreased significantly when intervention was implemented.

**Pre-Assessment Results**

The pre-assessment of social validity through the staff survey identified tasks for all five participants (see Table 1). For three of the participants, specific daily chores were problematic and for two participants, initiation of a shower was addressed. ABC data, collected by the researcher surrounding these tasks validated that participants were generally non-compliant with the identified tasks (see Appendix G). All participants had
expectations dropped, either by termination of the request or by staff completing the chore.

Once the ABC data confirmed the staff survey results, initiation criteria was established for each participant (see Table 2). The focus for 2 participants (C and F) was to take showers, and the other 3 was to initiate house chores that were part of house routine (A, D and E).

**Individualized COA Assessment**

Clear results were found from the COA for 4 out of 5 participants during their 9 sessions (see Table 3). Participant D had an additional tangible versus attention condition to further distinguish between these two conditions. There were 2 participants (A and D) who preferred tangible most, 2 participants (E and F) preferred attention the most, and 1 participant (C) who preferred escape from task.

**Treatment Results**

All participants demonstrated significant improvements in latency to complete tasks in daily routine once treatment was implemented compared to baseline phase (see Figure 1). For participant A, initiation of the task (cleaning the kitchen), was completely refused 50% of baseline measurements (see Figure 2). When the task was initiated, his behavior was variable, from 37 seconds to 2 minutes, 15 seconds to start. After treatment, participant A initiated the task, on average, within 30 seconds of the prompt, and his behavior remained stable throughout intervention. Participant C was non-compliant to 100% of requests, or consistently did not initiate showering at all during baseline when prompted by the researcher (see Figure 3). Following treatment, however, participant C
initiated compliance to the request less than 3 minutes, on average. This criteria for initiation is less stringent than originally proposed as successful (original criteria states less than 1 minute to initiate) because participant C’s initiation of the task included many steps (e.g., gathering hygiene supplies and clothes, then turning on the water), which took additional time.

Participant D only initiated her chore 4 out of 9 times during baseline, with unstable and varying levels of behavior (see Figure 4). When participant D did initiate the task, she took from 14 seconds to 2 minutes and 46 seconds, averaging 80 seconds to initiate. During the treatment phase, participant D averaged 26 seconds to initiate, with stable data after 3 sessions. Participant E was completely non-compliant to doing personal laundry during baseline, however averaged 27 seconds to put laundry in during the treatment phase (see Figure 5). Lastly, participant F was completely non-compliant 77% of the time when prompted to shower during baseline (see Figure 6). However, when she did initiate during baseline, her behavior was unstable and ranged from 65 seconds to 4 minutes and 8 seconds. During the treatment phase however, participant E’s initiation time was down to an average of 79 seconds.

Several additional points can be noted for the participants’ results. There were few overlapping data points across baseline and treatment phases. Moreover, all participants’ compliance behavior resulted in an immediate effect once the preferred consequence was implemented during the treatment phase compared to baseline phase.

Maintenance or generalization probes were taken after two weeks after treatment. All four participants scored at or below their average latency to initiate during treatment,
with the exception of participant C, who did not comply. Participant A was not available for a generalization probe due to movement to a less restrictive setting. Participant D initiated the task at 7 seconds, participant E at 37 seconds and participant F at 54 seconds.

**Social Validity Outcomes**

Social validity of the task, assessed post-treatment, showed that there was an increase in staff opinion that the task would be completed when asked. Along a 7-point scale, the average pre-assessment staff rating score for completion of task was 1.4, but was then increased to an average rating of 4.6 after treatment (see Table 5). Amount of change varied according to participant however. Staff rated that participant C was only slightly more likely to take a shower, however participants D and F were considerably more likely to initiate the desired task, compared to baseline. Participants A and E were also more likely to initiate, however there was not as substantial of a difference as participants D and F from pre to post assessment.

**Discussion**

The results suggest that latency to initiate compliance with daily living skills with adolescents who are dually diagnosed can be increased by using COA identified potential reinforcers. Increasing these participants’ daily living skills were seen as socially significant by staff and were able to be maintained two weeks participants beyond the completion of treatment for 3 out of 4 participants.

The use of a COA may be more feasible than other traditional assessments (e.g., descriptive analysis, observational assessment) when working with individuals with dual diagnosis in a residential setting. Even though past studies (Camp et al., 2009, Romaniuk
et al., 2002; Roscoe et al., 2008) have indicated that a functional analysis is the best way to determine the function of a problem, it may not always be safely preformed in all settings. By using a less time consuming and more feasible assessment, such as the concurrent operant preference assessment, individuals’ skills can be increased without a more restrictive placement. A COA does not need extra precautions in the environment to protect from provoking the individual’s dangerous behaviors, can be performed without a disruption to routine, and may lead to potentially a higher quality of life.

This study extends past research using concurrent operant preference assessments to assess social reinforcers. This is demonstrated by applying it to a dually diagnosed population, as well as daily living skills compliance. Although Berg et al. (2007) compared COA results to that of a functional analysis, they did not apply this assessment in an applied setting. The current results further expand on this preliminary research.

Limitations and Future Research

Future research in this area should address the drawbacks associated with the current study. This research included a very small sample of individuals who are currently being served in a residential setting. All participants were adolescents who had both a mental health and intellectual disability diagnosis; however the COA process may also be successful for those without these challenges or across age brackets. Additionally, targeted tasks were all activities the participants had the ability and skills to perform, however chose not to. It must be determined whether this type of assessment could be used to choose a potential reinforcer to teach a new skill, rather than increase compliance with a known skill.
It also should be noted that although the participants in this study were less likely to delay engagement in daily living skills after the intervention, we are not certain that the consequence was the only stimulus that would bring an increase in compliance for that individual. By definition, a reinforcer serves to increase the likelihood of that behavior performed in the future (Cooper et al., 2007). However, this study did not compare the COA-identified consequence to the non-preferred consequences for the behavior. For example, if the COA determined that the individual preferred tangible the most, the individual would receive access to a tangible as a reinforcer. In this case, this study did not compare the tangible consequence to attention. Future research may expand on this area.

Additionally, it should be noted that the COA establishes an individual’s preferred consequence, not a reinforcer. Other factors may be involved in the choice of conditions during the COA, such as novelty or quality of stimulus, making it difficult conclude that what is chosen is a true reinforcer. For instance, when given a choice between using a pen or a pencil, a pen is chosen. However, that person may not increase completing a chore (i.e., vacuum the house) if given that same pen. Future research could address this research question by performing an ABAB research design to evaluate whether the consequence serves as a reinforcer. An increase in the individual’s behavior when the item is offered immediately after it, then a decrease whenever the item is not offered, and a replication of this effect, would demonstrate that this item is a reinforcer for the individual.

Another issue is that the COA determines preference for social consequences (attention from staff, watching a movie), which may not necessarily be related to the
function of the problem behavior. One could conclude that an individual’s strong
preference for a consequence could be reinforcers for the problem behavior; however this
has not been extensively studied (e.g., Berg et al., 2007). Also, with any function-based
intervention, considerations should be made when working with individuals ranking
escape as chosen consequence. It is not always feasible to have an additional request
dropped (or escaped) in place of a targeted task. A more acceptable treatment approach
for escape maintained problem behavior is that additional demands would be slowly re-
introduced to the individual.

Another limitation of the current study is that there was not an initial
reinforcement assessment for items and people (for the attention condition) used during
the COA. The possibility exists that the consequence chosen by the individual (access to
movie or a certain staff member) is not the most preferred in that condition. For instance,
the individual may prefer an action movie over a comedy, however the item chosen for
the condition was only “movie.” For this reason, future research may address this by
performing a reinforcer assessment for items within a condition before conducting the
COA.

These results demonstrate the treatment utility of an alternative assessment that
may be useful when functional analysis is not feasible. By using methods, such as the
COA, individuals may be treated in residential settings, leading to less of a disruption in
development and a higher quality of life for individuals with problem behaviors and their
families.
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Intellectual Disability: *A textbook of diagnosis of mental disorders in persons with

Fisher, W., Piazza, C. C., Bowman, L. G., Hagopian, L. P., Owens, J. C., & Slevin, I.
with severe and profound disabilities. *Journal of Applied Behavior Analysis, 25,*

Effectiveness of functional communication training with and without extinction
and punishment: A summary of 21 inpatient cases. *Journal of Applied Behavior
Analysis, 31,* 211-235.

*Journal of Applied Behavior Analysis, 27,* 401-404.


low-rate high-intensity problem behavior. *Journal of Applied Behavior Analysis,

doi:10.1901/jaba.2007.43-06.


Table 1 *Social Validity Pre and Post Intervention, as Rated by Staff*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Task</th>
<th>Baseline Ranking</th>
<th>Post Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Clean Kitchen</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>Shower</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>D</td>
<td>Chore</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>E</td>
<td>Laundry</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>F</td>
<td>Shower</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>
Table 2 *ABC Tracking*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Antecedent</th>
<th>Behavior</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Prompt to clean kitchen</td>
<td>Walk away</td>
<td>Staff clean</td>
</tr>
<tr>
<td>C</td>
<td>Prompt to shower</td>
<td>Continue</td>
<td>Drop expectation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>watching TV</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Prompt to complete chore</td>
<td>Walk away</td>
<td>Staff complete chore</td>
</tr>
<tr>
<td>E</td>
<td>Prompt to do laundry</td>
<td>Wait for staff to help</td>
<td>Staff complete laundry</td>
</tr>
<tr>
<td>F</td>
<td>Prompt to take shower</td>
<td>Tell staff she would do it later</td>
<td>Drop expectation until later</td>
</tr>
</tbody>
</table>
Table 3 *COA and Preferred Consequences Results*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Attention</th>
<th>Tangible</th>
<th>Escape</th>
<th>COA result</th>
<th>Consequence Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>42%</td>
<td>58%</td>
<td>0%</td>
<td>Tangible</td>
<td>Computer time</td>
</tr>
<tr>
<td>C</td>
<td>31%</td>
<td>10%</td>
<td>59%</td>
<td>Escape</td>
<td>Get out of later task</td>
</tr>
<tr>
<td>D</td>
<td>42%</td>
<td>58%</td>
<td>0%</td>
<td>Tangible</td>
<td>Watch a movie</td>
</tr>
<tr>
<td>E</td>
<td>67%</td>
<td>31%</td>
<td>2%</td>
<td>Attention</td>
<td>Time with researcher</td>
</tr>
<tr>
<td>F</td>
<td>51%</td>
<td>49%</td>
<td>0%</td>
<td>Attention</td>
<td>Time with preferred staff</td>
</tr>
</tbody>
</table>
Table 4 IOA for Each Participant by Condition

<table>
<thead>
<tr>
<th>Participant</th>
<th>Baseline</th>
<th>Implementation</th>
<th>Participant Overall %</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>97%</td>
<td>100%</td>
<td>98.5%</td>
</tr>
<tr>
<td>C</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>D</td>
<td>100%</td>
<td>99%</td>
<td>99.5%</td>
</tr>
<tr>
<td>E</td>
<td>100%</td>
<td>98%</td>
<td>99%</td>
</tr>
<tr>
<td>F</td>
<td>100%</td>
<td>99%</td>
<td>99.5%</td>
</tr>
<tr>
<td>Total</td>
<td>99.4%</td>
<td>99.2%</td>
<td>99.2%</td>
</tr>
</tbody>
</table>
Figure 1 Latency to Initiation during Baseline and Treatment Phases
Figure 2 Participant A Latency to Initiation during Baseline and Treatment Phases
Figure 3 Participant C Latency to Initiation during Baseline and Treatment Phases
Figure 4 Participant D Latency to Initiation during Baseline and Treatment Phases
Figure 5 Participant E Latency to Initiation during Baseline and Treatment Phases
Figure 6 Participant F Latency to Initiation during Baseline and Treatment Phases
Appendix A  
Permission for Child to Participate in Research

The following information describes a research study in which your child is being asked to participate. Please read the information carefully. Afterwards, you will be asked to sign if you agree to allow your child to participate.

A. INVESTIGATOR(S): Beth Speares, BCaBA, Behavior Analyst, Intensive Support Unit at Hillside Children’s Center.

B. PURPOSE: This study involves research. The purpose of this research is to identify a reinforcer to increase participants’ compliance with the daily living skill.

C. EXPECTED DURATION: The length of time your child is expected to participate in the study is approximately 10 minutes per day, with an initial evaluation up to 2 hours per day to assess. Total duration of the study will be two to three months.

D. PROCEDURES: Your child will be initially assessed for what daily living skills she/he is challenged with completing, along with which items or activities your child will find the most reinforcing. Following an assessment of function of the non-compliance, your child will participate in a number of trials using reinforcement.

The script of request will be: “(Individual’s Name), it is time to (state targeted request). When you are done with that, you can (state what is being earned).” This will continue until your it has taken less than 1 minute to initiate the task requested. If the task is not completed for 10 sessions, this procedure will be terminated.

E. POSSIBLE DISCOMFORTS AND/OR RISKS: We anticipate no significant risks or discomforts associated with this study other than the time it will take to conduct the sessions or fatigue these sessions may produce. Sessions will be terminated if your child behaviorally escalates during the intervention.

F. POSSIBLE BENEFITS: Through this intervention, better ways of intervening during precursor events will be tested and taught to your child. Reinforcement assessments will be performed to better help your child learn new skills in the future.

G. ALTERNATIVE PROCEDURES: Not applicable.

H. CONFIDENTIALITY: Confidentiality of your child’s research records (e.g., data sheets) will be strictly maintained by ensuring that data collected and personal information for each child is kept separate in a locked file cabinet. Your child’s name and personal information will be kept private by each researcher involved in this study. No names (no first or last name) will be associated with the data; instead, a code will be associated with the data. The data (data sheets and video-tapes) will be destroyed within five years from the date it was collected. Within that period, the investigator will use the
data collected unless consent is withdrawn (as indicated in writing).

I. **COST AND COMPENSATION:** There are no costs or compensation associated with your child’s participation in this study.

J. **VOLUNTARINESS:** Your child’s participation is completely voluntary. Refusal to participate in this study will not result in any penalty or loss of benefits to which your child is otherwise entitled. Your child may likewise discontinue participation in the study at any time without penalty or loss of benefits.

K. **CONTACT INFORMATION:** Beth Speares, BCaBA, Behavior Analyst Intensive Support Unit, Hillside Children’s Center or Dr. Marcie Desrochers, Associate Professor of Psychology and Board Certified Behavior Analyst, SUNY-Brockport ( ) will gladly answer any questions you may have concerning the purpose, procedures, and outcome of this project. You may also contact the SUNY Brockport Institutional Review Board (IRB) via Colleen Donaldson, IRB Administrator (585-395-5118). The IRB is a college committee concerned with the protection of human research participants.

I have read and understand the information in this parental permission form and agree to allow my child to participate in this study.

_____ I would like to receive a copy of the results of this study.

Mailing Address: ________________________________

___________________________  __________________________
Printed Name of Parent/Legal Guardian  Signature of Parent/Legal Guardian

___________________________  __________________________
Signature of Person Obtaining Consent  Child’s Name & Date of Birth
Appendix B  *Participant Assent*

_____ Verbal Explanation of the procedure has been given to the potential participant.

Who explained the procedure?

Witness ________________________________

Script:

I would like to know if you would be willing to help with some research about how to help kids like you do chores and other things around the cottage that may be hard at times. You will get to choose what kind of activities you would like to do. Ms. Beth will ask you to do a task, and you will earn something. If at any time, you are mad about your job that needs to be completed, that is okay. Nothing you do during the time with me will affect any consequences in your program. You can quit this research at any time. Do you have any questions?

_____ I have been given the chance to ask questions, and all of them were answered for me.

_____ Yes. I would like to participate in this research with Ms. Beth

_____ No. I do not want to participate in this research with Ms. Beth. I understand that it is okay to not do this and it will not affect any other parts of my behavior plan, at the ISU.

______________________________  ________________________________
My Signature                  Dr. Chris’ Signature
Appendix C *Assessment of Social Validity*

Participant:

Date:

How likely is this individual to complete:

<table>
<thead>
<tr>
<th>Task</th>
<th>Rare</th>
<th>Sometimes</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Chore</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vacuuming</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Dishes</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Exercise</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other:</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Staff Signature:
Appendix D Participant Rating of Tasks

Participant Assessment of Social Validity

My Name: _______________________

Please rate how much you like doing the following things:

vacuuming

Washing Dishes

Brushing Teeth

Exercise

I like to:

I hate doing:
### ABC Chart Form

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Activity</th>
<th>Antecedent</th>
<th>Behavior</th>
<th>Consequence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</tr>
</tbody>
</table>

**Antecedent**
- What happened right before the behavior occurred?

**Activity**
- What activity was happening when the behavior occurred?

**Behavior**
- What was the behavior?

**Consequence**
- What happened as a result of the behavior?
Appendix F *Example of Order of COA Conditions*

<table>
<thead>
<tr>
<th>Trial</th>
<th>Table 1 Option</th>
<th>Table 2 Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Attention</td>
<td>Tangible</td>
</tr>
<tr>
<td>2</td>
<td>Attention with demand (worksheet)</td>
<td>Escape (take a break)</td>
</tr>
<tr>
<td>3</td>
<td>Escape (take a break)</td>
<td>Tangible with demand (worksheet)</td>
</tr>
<tr>
<td>4</td>
<td>Tangible</td>
<td>Attention</td>
</tr>
<tr>
<td>5</td>
<td>Escape</td>
<td>Attention with demand</td>
</tr>
<tr>
<td>6</td>
<td>Tangible with demand</td>
<td>Escape</td>
</tr>
<tr>
<td>7</td>
<td>Attention</td>
<td>Tangible</td>
</tr>
<tr>
<td>8</td>
<td>Escape</td>
<td>Tangible with demand</td>
</tr>
<tr>
<td>9</td>
<td>Attention with demand</td>
<td>Escape</td>
</tr>
</tbody>
</table>
Appendix G *Task and Initiation Criteria by Participant*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Task</th>
<th>Initiation Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Clean Kitchen</td>
<td>Independently begin cleaning kitchen or counters after dinner</td>
</tr>
<tr>
<td>C</td>
<td>Take a shower</td>
<td>Turn on water to take a shower</td>
</tr>
<tr>
<td>D</td>
<td>Evening chore (according to house chore schedule)</td>
<td>Initiate chore, rotated between take out trash, do dishes, set table and vacuum</td>
</tr>
<tr>
<td>E</td>
<td>Do laundry</td>
<td>Gather personal laundry and put in the washer independently</td>
</tr>
<tr>
<td>F</td>
<td>Take a shower</td>
<td>Gather supplies and close door to bathroom to initiate shower</td>
</tr>
</tbody>
</table>
### Appendix H: Items used during COA Procedure by Individual

<table>
<thead>
<tr>
<th>Individual</th>
<th>Tangible Item(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Computer</td>
</tr>
<tr>
<td>C</td>
<td>Costumes</td>
</tr>
<tr>
<td>D</td>
<td>DVD Player with Movie</td>
</tr>
<tr>
<td>E</td>
<td>Music Player</td>
</tr>
<tr>
<td>F</td>
<td>Dolls and CD player</td>
</tr>
</tbody>
</table>