Evaluating the Effectiveness of Using a Token Economy to Increase
Compliance with Staff Requests in a 27-Year-Old Female with
Williams Syndrome

by

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Dedication

My family – Darrell, Christy, and Faith Searles:
   Thank you for your unconditional support throughout my academic career. Your love, guidance, and encouragement has helped push me to reach this point; I am forever grateful.
Brittnee Revell:
   Thank you for your friendship and guidance. You have been my biggest motivator throughout our years in the Behavioural Psychology program – you are my inspiration.
Michael Smith:
   Thank you for always being my number one fan, even in the midst of my own self-doubt. Your encouragement, voice of reason, and unending support helped me persevere through the and I cannot thank you enough for all of the hours you have dedicated to supporting me throughout this process, and I know that without you, this would not have been possible. Thank you.
   Thank you all for your unwavering support, encouragement, love, and for helping to push me to new levels. This thesis is dedicated to all of you.
Abstract

Williams Syndrome (WS) is a developmental disability characterized by a variety of physical, cognitive, and behavioural impairments that can contribute to lower interpersonal and educational development. Although individuals with WS are high functioning, many of the impairments associated with the disability can impact the individual’s life substantially. When implementing behavioural interventions with individuals with Williams Syndrome, previous research has suggested that the interventions should be based on reinforcement procedures, rather than punishment, as these individuals can become anxious and overwhelmed easily. Token economy systems are based on the principles of reinforcement, in which an individual is provided tokens for every occurrence of the desired behaviours. Tokens are cumulated over a specified time period, and can later be exchanged for desirable reinforcers. The current study aimed to evaluate the effectiveness of using a token economy to increase compliance to self-care tasks as requested by supporting staff within an independent living facility. The participant was a 27-year-old female, who was introduced to a token economy system to increase compliance surrounding self-care task, for example, compliance to showering, or doing laundry, for a duration of three consecutive weeks. Results of the research indicated that the token economy system was effective in increasing compliance to staff requests over the course of the intervention. The present study confirmed the hypothesis that a token economy system could be effective when implemented specifically for one individual as opposed to a group of individuals. Previous research on token economies has focussed on problem classroom behaviours and individuals with Autism. The current study evaluated the effectiveness of a token economy implemented within an independent living facility with an individual with Williams Syndrome.
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Chapter I: Introduction

Williams Syndrome (WS) is a rare neurodevelopment disorder that causes abnormalities in the development of sensory processing, executive control, emotion regulation, as well as motor performance (Riby, Janes, & Rodgers, 2013). Many individuals with Williams Syndrome most often function at high levels; however, WS can also contribute to impairments in an individual’s behaviour management abilities (Inui, 2013).

Individuals with Williams Syndrome can become overly anxious when presented with requests, and as a means of coping they will often deny the request or ignore it (Hocking et al., 2013). Over extended lengths of time, noncompliance can begin to impact the person’s social and educational development, as well as their general well being if the denied requests are those surrounding personal hygiene and self-care actions (Axelrod & Zank, 2012). According to Ducharme, Sanjuan, and Drain (2007), individuals who continually deny requests often face difficulties in building positive and sustainable personal and professional relationships with those who are presenting the requests. Staff, parents, or peers who work directly with the individual may become frustrated at prolonged instances of noncompliance, which may in turn cause tension in the relationship. Additionally, compliance with requests provides experience-based learning opportunities that may benefit the individual’s development (Axelrod & Zank, 2012).

Token economy systems are becoming more commonly used and accepted as a behavioural modification method, and have been shown to be effective in reducing problematic behaviours in a variety of different contexts (Doll et al., 2013). Token economies involve the presentation of tokens (e.g. bingo chips, check marks, coins) as rewards for the occurrences of a specified desired behaviour. Accumulated tokens can be exchanged after a specified length of time, for tangible reinforcement options such as access to a preferred toy, food item, or activity, these tangible reinforcers are also known as secondary reinforcers (Doll et al., 2013). According to Filcheck, McNeil, Greco, and Barnard (2004) token economies can be applied in both group and individual settings, and can be used to increase desired behaviours and to subsequently reduce occurrences of undesired behaviours or among a variety of client populations.
Rationale

Resistance to requests was becoming a source of frustration and tension for both staff as well as the individual with Williams Syndrome, and therefore the agency suggested that it would be beneficial to increase compliant behaviours in the individual. Tension in this case was defined as feelings of hostility, lowered rapport between two individuals, accompanied by behavioural reactions such as reduced communication, and reductions in staff urgency to aid the participant in instances where noncompliance was likely to occur. As a result of the tension, agency staff reported feelings of burnout and were concerned that their relationship with the individual supported were beginning to weaken. The staff at the agency aimed to instil and maintain independence in the person supported within the agency, and were concerned that without intervention to increase levels of compliance, the individual would always need staff supports. Targeting compliance to staff-requests was also hypothesized to allow the agency staff to be able to work with the individual both within the home and in the community in a more productive and cooperative manner. Additionally, the agency was concerned that the lack of compliant behaviours were beginning to impede the individual’s experienced-based learning opportunities, and overall well-being in terms of personal hygiene and self-care.

Hypothesis

The current study hypothesized that a token economy intervention would effectively increase the occurrences of compliance towards staff, peer, and parental requests of household and self-care tasks in an individual with WS. It was further hypothesized that instances of noncompliance would concomitantly be reduced. It was hoped that in the long-term, improved compliance with requests would help to increase the social and educational development of the individual with Williams Syndrome.

Overview

The thesis includes an initial literature review, which outlines the defining characteristics of Williams Syndrome, along with a review of the relevant research that evaluated the effectiveness of token economies. The method section provides information pertaining to the participant, setting, and unique token economy contingencies that were used in the current study. Results and findings are also described in detail through visual and descriptive statistics that outlined the effectiveness of the token economy for the participant with WS. Finally, the results of the study and implications for the agency, future research and the contribution to the field of behavioural psychology are also discussed, along with the limitations of the present study.
Chapter II: Literature Review

Williams Syndrome (WS) Overview

Williams Syndrome (WS) is a rare neurodevelopment disorder caused by abnormalities in the development of chromosome 7 (Hocking et al., 2013). WS is associated with distinct facial characteristics including full cheeks, a wide mouth, full lips, and a star shaped pattern on the iris of the eye (NINDS Williams Syndrome Information Page, 2008). WS is often associated with verbal short-term memory strengths, along with the ability to speak fluently, and the ability to retain information and store it in long-term memory (NINDS Williams Syndrome Information Page, 2008).

Although individuals with Williams Syndrome are typically high-functioning, they often have mild to moderate learning difficulties and can sometimes display impairments in a variety of domains including sensory processing, executive control, emotion regulation, as well as motor performance (Riby et al., 2013). Additionally, WS can contribute to impairments in an individual’s behaviour management abilities, which can also result in oppositional behaviours, obsessive-compulsive behaviours, high levels of anxiety, and attentional difficulties (Inui, 2013).

Individuals with Williams Syndrome may become overly anxious when presented with requests and as a means of coping they may deny the request or ignore it (Hocking et al., 2013). Over extended lengths of time, noncompliance with requests can begin to impact the individual’s social and educational development and can lead to health concerns if the person supported is not complying to maintain higher levels of self-care and hygiene practices (Axelrod & Zank, 2012). According to Ducharme and colleagues (2007), individuals who continually deny requests often face difficulties in building positive and sustainable relationships with those who are presenting the requests. Those who work directly with the individual may become frustrated after prolonged instances of noncompliance, which may eventually result in a strain on the relationship. Additionally, compliance with requests provides experience-based learning opportunities that may benefit the individual’s development through the knowledge that is associated with completing the task (Axelrod & Zank, 2012).

When working with individuals with WS who experience high anxiety, it is recommended that the intervention include curricula or interventions that are highly structured, motivational, and reward-based (Levine, 2014).

Independent Living Facilities Overview

Lachat explains that independent living accommodations are centred on the core concept of fostering and maintaining individuals’ independence (2002). Independent living facilities are living arrangements which provide living conditions for the individuals in attempts to integrate them into the community, and to maintain the individuals’ ability to obtain control over their own lives (Lachat, 2002). The researcher suggested that most independent living agencies provide staffing, schedules, dietary assistance, medication assistance, or transportation assistance for the residing persons should they need it (Lechat, 2002). Lachat also states that although it is still the responsibility of the individuals themselves to monitor their own daily activities,
decision-making, educational and professional obligations, building and maintaining of social relationships, and many other daily living functions (2002). Generally, the goal of independent living facilities is to provide care to individuals with disabilities or specific needs by equipping them with the necessary tools or to provide assistance required for maintaining the person’s health, or safety (Lachat, 2002). However, assistance provided by these agencies is limited to the areas of need in which the individual is unable to maintain on their own, thus the individuals are still held responsible for all other areas of their daily living (Lachat, 2002).

The movement from hospitalization and institutionalization of individuals with disabilities to independent living alternatives has steadily been on the rise (Felce et al., 2008). Felce and colleagues (2008) suggested that smaller independent living accommodations for individuals with disabilities are associated with a greater quality of life for the individuals and that independent living facilities provide individuals with an enhanced sense of self-determination, social inclusion, and independence.

Tomita et al., (2004) noted that independent living facilities are multi-dimensional and typically offer more support for individuals than other accommodation alternatives. Independent living encompasses a wide variety of support offered to individuals without having to isolate them from the community, including staffing, community programs and involvement, personal care aids, transportation assistance, and subsidized living costs (Tomita et al., 2004. Schwartz (2003) conducted a study aimed at determining whether individuals living in the independent facilities were satisfied with their quality of life and the quality of care that they received. In the study, it was noted that residents within the independent living facilities, with the exception of those with severe physical restrictions, were happy with their living arrangements, and believed that the overall benefits of independent living were substantial (Schwartz, 2003).

While the literature suggests that independent living alternatives for individuals with disabilities can provide substantial benefits for the residents in comparison to institutional or hospital care, little research has evaluated the effectiveness of Applied Behaviour Analysis (ABA) being used with residents of independent living facilities, and specifically the use of token economies. Introducing Applied Behaviour Analysis techniques, collecting and analyzing data on their effectiveness within this setting may help to broaden applications of ABA. The collection and interpretation of data will also provide researchers with a better understanding of how to manage group behaviours while still maintaining independence for the residents within the alternative living settings. Additionally, greater knowledge of the possibility of behavioural management within an independent living setting will provide supported living agencies with an enhanced understanding of how to better care for the residents, and thus allowing the agencies to accept more residents without the fear of behavioural conflicts. Through conducting more thorough research, the field would be able to move more individuals with behavioural deficits to independent living settings, therefore reducing the number of residents placed in institutional or hospital settings.

Noncompliance Overview

Noncompliance is described as an undesirable behaviour that is defined by the nonfulfillment of a specific request within a certain length of time (Axelrod & Zank, 2012). The
amount of time it takes for an individual to engage in the task after the presentation of a request is a crucial factor to be considered when measuring compliance. Additionally, it is also important to consider the length of time that the task takes to be completed after the initial presentation of a request. If the task is completed within a time frame that is not considered to be sufficient time to have allowed for the task to have been completed properly, that would be considered to be a form of noncompliance. For example, for an individual to have successfully been compliant to the request “please clean your room”, the task should take a minimum of twenty minutes to complete. Another factor to consider when measuring compliance is the amount of effort that the individual uses to complete the specified request. If the request was “please wash your hands” and the individual had access to a sink and soap, yet only chose to put on hand sanitizer, this would be considered a noncompliant behaviour.

Continued or excessive noncompliance can create tension in the social relationships between the individual presenting the request, and the noncompliant individual, often resulting in a deterioration of social development and functioning (Axelrod & Zank, 2012). Additionally, compliance to requests provides learning opportunities within the experience of completing the request. If noncompliance occurs over extended periods of time, the individual denying the request misses opportunities to gain the knowledge associated with that specific task (Axelrod & Zank, 2012). When noncompliance is centered on household or self-care tasks for prolonged lengths of time (i.e. dressing, cleaning, and bathing), the noncompliant individual’s health and personal well being may also deteriorate (Axelrod & Zank, 2012). Support staff, teachers, parents, and peers of excessively noncompliant individuals often resort to punitive techniques in attempt to reduce the instances of noncompliance.

**Token Economy Overview**

When implemented correctly, token economy techniques are based on the same core principles as operant conditioning (Doll et al., 2013). Neutral stimuli such as bingo chips or check marks are given reinforcing properties through repeated pairing with preferred reinforcements that had been discovered through the initial reinforcement assessments (Didden, Moor, & Bruyns, 1997). Preferred reinforcements can include tangible items such as craft supplies, activities, or money. Other reinforcements can be socially mediated such as access to attention or praise from others. Tokens are presented to an individual as “points” for every occurrence of a specified desired behaviour (Boniecki & Moore, 2003). Earned tokens are placed in a designated area such as a jar or on a chart and are added up over a specified amount of time. The researcher and the participant discuss goals for how many tokens are to be earned during the time frame; these goals can later be increased or decreased to match the needs or progress of the individual. Once the individual has reached the established criteria for the number of tokens required within an allotted timeframe, the tokens can be exchanged for more substantial reinforcement options, also termed secondary reinforcements (Neitzel, 2009). If the individual progresses and successfully obtains the required amount of tokens consecutively, the number of tokens required for access to the secondary reinforcement can be increased to ensure that the level of compliance continues to rise, and to also promote independence for the individual (Neitzel, 2009).
At the time of the study there was no available research that focused on using token economy systems with individuals with Williams Syndrome specifically. Additionally, there is no research pertaining to the effectiveness of a token economy specific to one female participant within an independent living facility at the present time.

However, Leblanc, Hagopian, and Maglier (2000) implemented a token economy paired with a response-cost procedure to increase appropriate social interactions in a 26-year-old male participant with a moderate developmental disability. The token economy and response-cost were implemented on a differential reinforcement of other behaviour (DRO) schedule of reinforcement where the participant would receive tokens in exchange for every occurrence of an appropriate social interaction such as initiation of a conversation (LeBlanc et al., 2000). Whenever the participant would engage in any form of an inappropriate social interaction, such as sexual advancements, or aggression, a token would be subsequently removed, which is known as a response cost procedure (LeBlanc et al., 2000). The results of the study conducted by LeBlanc et al. (2000) indicated that the combination of a token economy and response-cost procedure was effective in increasing appropriate social interactions and the data in this study also indicated that there was a 97% increase in appropriate social interactions during intervention when compared to baseline data. LeBlanc and colleagues (2000) also noted that the target behaviour remained at low levels even at follow-up. The study by Leblanc et al. (2000) indicates that a token economy paired with a response cost procedure can be effective when working with an individual with a developmental disability, however, another study conducted by Reese, Sherman, and Sheldon (1998) suggests that token economies can be equally effective when used as a standalone technique without the use of a response cost.

Reese and colleagues (1998) evaluated the effectiveness of implementing a token economy procedure on a DRO schedule. The study was conducted within a group-based living setting to target disruptive and aggressive behaviours displayed by one individual (Reese et al., 1998). The study took place within a group home for individuals with Autism and Developmental Disabilities, and focused mainly on the effectiveness of using a token economy system to reduce aggressive behaviours. Reese, Sherman, and Sheldon (1998) used a token economy in which each participant in the study was presented with a token in the absence of disruptive or aggressive behaviours on a DRO schedule. The study showed that the effectiveness of the token economy was related to the intervals associated with the schedule of reinforcement (Reese et al., 1998). When the DRO intervals were too long, the token economy was less effective, and the individual’s undesired behaviours showed little change. Although the participant for the current research study is female, the study by Reese and colleagues (1998) identifies the possibility of implementing a token economy to target the behaviours exhibited by one participant rather than a group of individuals. The research by Reese et al (1998) suggests that it is beneficial to incorporate the environment and schedules of reinforcement when implementing a token economy procedure, which the current research study does not focus on in sufficient detail; however, the above study demonstrates that token economies can be used within assisted living settings with success.

In comparison, Tennov, Jacobson, and Vittucci (1980) conducted a study on the effectiveness of using a token economy within the homes of 84 volunteer families. The families
were taught how to implement a token economy system within their household for a variety of
target behaviours depending on the specific needs of each family (Tennov et al., 1980).
Interestingly, the results of the study showed that while using a token economy within the
household to target completion of household chores and other behavioural concerns, the families
reported an increase in effective social interactions among members (Tennov et al., 1980). The
families also reported an improvement of the overall tone of the family dynamic (Tennov et al.,
1980). Additionally the study noted that the effectiveness of the token economy procedures was
related to the amount of time that the system had been in place (Tennov et al., 1980). The longer
that the token economy system had been used by the family at follow-up, the more effective the
token economy was. Although the study conducted by Tennov and colleagues (1980) was
conducted within a family atmosphere, it demonstrates how the reduction of undesired
behaviours within a living setting can increase the social interactions and overall dynamic of the
social atmosphere. The above study provides some evidence pertaining to the effectiveness of
implementing a token economy system to relieve strain on the social relationships within a living
arrangement.

Similarly, Doll et al. (2013), noted that token economies as a standalone technique can
also improve positive behaviour changes within the individual’s home environment, and that the
involvement of parents or caregivers can greatly increase the likelihood of sustained and
generalized behaviour changes. Although the research conducted by Doll et al. (2013) does not
offer any substantial information pertaining to the use of a token economy in additional settings,
specifically independent living or grouped living facilities. However, literature on a study by
Klein, Frank, and Jacobs (1980) provides more information on the effectiveness of a token
economy in such settings.

Klein et al. (1980) assessed the effectiveness of implementing a token economy within an
independent living facility with 36 elderly individuals. The study aimed to work with geriatric
patients within the independent facility to reduce behaviours that would prevent the individuals
from being able to live on their own, such as, engagement in daily living tasks (cooking,
self-medication), and independent decision making (Klein et al., 1980). The individuals in the
study were separated into smaller groups of 8-12 people all with similar conditions, levels of
assistance, behavioural needs, and independence (Klein et al., 1980). Each group was assessed in
terms of which behavioural domains needed to be targeted.

According to the needs of each of the groups, the individuals received tokens for
engaging in tasks that were considered to be important for their progress towards independence
(Klein et al., 1980). The results of the study indicated that 51% of the individuals showed such
significant behavioural improvements that they were discharged from the independent living
facility and were transferred to either their own apartments or to live with family. Additionally,
after the implementation of the token economy procedure, the average length of stay among the
geriatric patients within the facility decreased from 7.87 months to 5.32 months. The study
conducted by Klein and others (1980) provides information relating to the use of token
economies within independent living facilities. Although the size of the population used in this
study was large in comparison to the current study of one participant, the study demonstrates that
token economies have been effective when used within independent living facilities.
The majority of research on token economy systems is focused on the implementation of the system among a group of participants, and the majority of the literature was conducted in the late 1900’s. More current research is needed on the effectiveness of token economies, and their application on smaller populations, in a variety of settings.

Relationship between the Literature and the Current Study

As noted previously Reese et al. (1989), found token economy systems to be effective when used with one participant within an independent living facility. Similarly, Klein et al (1980) investigated the effectiveness of using a token economy with a much larger population within an independent living setting, and their study yielded similar results, indicating that the implementation of the token economy was shown to be effective in that setting. In contrast, Tennov and others (1980) focused on the use of a token economy within family home settings among 84 different families. The results of the study conducted by Tennov et al. (1980) indicated that token economies can be applied to help increase compliance to household tasks, and concurrently increased the overall social interaction and atmosphere of the family dynamic.

There was no literature specific to the effectiveness of using a token economy with an individual with Williams Syndrome living within an independent living facility. Gaps in the current research were particularly significant regarding the effectiveness of using a token economy with one participant. Additional information in this area of study would be beneficial for practitioners and staff working with one individual with behavioural problems in comparison to a whole group. Providing more research and literature on this area of study would help to broaden the field of behavioural psychology by allowing practitioners to be able to reduce behavioural problems through using a highly structured, and motivational approach.

Additionally there was little research pertaining to the effectiveness of a token economy within an individual’s assisted living home. More information pertaining to this area of study would help to ensure that independent living facilities are better equipped to accommodate individuals with behavioural needs. Through providing more research and literature on how to effectively manage behavioural problems within this setting, there would be a decrease in the amount of individuals placed in institutions and hospital settings.

The majority of the research obtained on token economy systems was focused on individuals with developmental disabilities or other populations; however, there was no current literature on the effectiveness of a token economy with an individual with Williams Syndrome. Additional information in these areas of research could help to broaden the field of applied behavioural analysis through providing human service organizations with more specific information regarding token economy interventions and their applications to various populations and settings.

Based on the literature analysis, the present study aims to provide more research and data pertaining to the gaps in the current available literature. The purpose of the current study was to determine whether or not the use of a token economy would be effective in increasing occurrences of compliance to staff requests within an independent living facility for one 27-year-old female diagnosed with Williams Syndrome. The behaviours targeted for intervention were behaviours focused on self-care and household maintenance tasks that frequently resulted...
in a failure to comply when requested. It is hoped that in the longer term that increasing rates of compliance to these tasks, that the individual will benefit both socially, and educationally.
Chapter III: Method

Participant

The participant was a 27-year-old female who was born with Williams Syndrome (WS). The participant was recently moved to an independent living agency for individuals with developmental disabilities. The client was referred to the behavioural psychology student by the program manager at the agency because the agency staff were becoming concerned that the individual's high levels of noncompliance (i.e., refusing to comply with requests) had begun to impede the participant’s well being and development. The client was presented with a written consent form, which was reviewed and explained to her. The consent form (Appendix A) provided an overview of the intervention, the potential risks and benefits, and clarified that participation was completely voluntary. Additionally, the student ensured that the participant knew that she could withdraw at any time. The signed consent form was to be secured in a locked filing cabinet at the agency and will be kept there for a minimum of seven years. The individual was considered high functioning and competent enough to be able to provide her own consent without the need of a substitute decision maker.

Setting

The proposal for the study, which outlined the study in detail was submitted to the Research Ethics Board (REB). The study was reviewed by the REB members, and obtained approval. The study was conducted at the independent living facility in which the client was residing because that is where occurrences of noncompliance were most frequently reported. Additionally, because the client spent most of her time at the independent living facility, increasing compliance in this context was to be considered most beneficial for both the participant as well as agency staff.

Design

The study focused on increasing compliance to household and self-care requests through the use of a token economy procedure. The independent variable in this study was the implementation of the token economy. Token economy procedures use tokens as a means of providing an individual with a reward to reinforce or strengthen a particular behaviour. The individual was provided a token (poker chip) for every instance of a specified desired behaviour. When the individual in the study obtained a total of six tokens between the hours of 3 p.m. and 7 p.m. daily, the tokens were exchanged for more tangible reinforcement options, which were determined through the completion of a reinforcer survey. The survey consisted of various questions pertaining to potential reinforcement options, in which the individual ranked items on a scale of 1-5, with 1 being least preferred, and 5 indicating most preferred items. The dependent variable was the number of times that the client engaged in compliant behaviours. Compliance was defined as any attempt made by the individual to begin completing a specified request within one minute of the request being presented. In order for compliance to occur the individual had to show that adequate effort was being expended to complete the task, and that the task was
completed within an adequate time frame. Additionally, noncompliant behaviours were measured to determine if there was a co-occurring decrease in noncompliance. Noncompliant behaviours were defined as any behavior that resulted in the escape or nonfulfillment of a specific request within one minute of the request being presented. The student researcher, and staff were given the role of presenting the individual with tokens following occurrences of compliant behaviours, which ensured that the staff at the agency knew how to carry out the token economy intervention. Data was collected on the dependent variables through event recording methods (Appendix B). The behavioural psychology student and agency staff recorded occurrences of compliance and noncompliance between the hours of 4 p.m. and 9 p.m. everyday, including weekends using a pencil and paper for a total of three weeks. The intervention was set up during these hours because the individual was typically only at the agency during those specific hours each night.

**Measures**

Before implementing the token economy, a revised version of the errorless compliance probability checklist derived from Levine (2010) was used to determine which requests were most often followed by opposition and instances of noncompliance (Appendix C). This checklist was completed by the student with the agency staff who most frequently worked with the individual. The checklist provided a better understanding of which household tasks may have presented a challenge during implementation, and which requests were considered more crucial to target according to the agency staff. The results of the errorless compliance checklist indicated that the individual most frequently displayed noncompliant behaviours when requests were pertaining to household tasks, or self-care tasks.

A functional assessment screening tool was also completed with the staff to determine the conditions under which noncompliance was most frequent (Appendix D). The results of the screening tool indicated that noncompliant behaviour occurred most frequently in the presence of staff or other people, especially in situations where the individual would receive more attention from staff for refusal to comply.

Additionally, a reinforcer survey was completed before implementation of the token economy to determine what items the participant found to be most reinforcing (Appendix E). The results from the reinforcer survey suggested that the individual found attention-based reinforcement options to be the most reinforcing, while reinforcers that included less social interaction were less reinforcing. For example, the individual ranked items such as “playing a game with staff” or “doing a craft with someone else” at a level 5, whereas items such as “receive a sticker” had been ranked slightly lower.

The intervention was delivered in an AB design over the course of twelve weeks, where baseline data (A) was collected for the first two weeks of the research study, immediately followed by the implementation of the token economy system which was implemented over three weeks (B).
Format

Baseline was collected from Monday to Friday between the hours of 4:00 p.m. and 9:00 p.m. for a total of ten days. Baseline was collected at these times because the client was always present at the independent living facility during these hours. The results of the baseline data collection showed that the individual displayed a low frequency of compliance to household and self-care tasks. However, there were two days when the individual was not at the agency, which resulted in two missing data points.

The token economy intervention phase was delivered for 21 days every day between the hours of 4:00 p.m. and 9:00 p.m. Intervention data was collected using the same event recording methods used during the baseline data observations and recordings.
Chapter IV: Results

A token economy intervention system was implemented over a 21-day period within the independent living facility in which the participant lived. During this time the token economy was found to be effective in increasing compliance to staff requests of self-care and household tasks.

As per Table 1, during the 10-day baseline phase, the average percentage of compliance to staff requests was 39.0% and ranged from 15.0% to 70%. Baseline data showed a stable trend, which indicated that the percentage of compliance was likely to remain at low levels if intervention was not implemented (Appendix F). The standard deviation of baseline data was calculated as 0.1616, with a slope of -3.995, and a range of 0.50. Figure 1 presents a visual analysis of the data collected without the included trend line data.

![Baseline Data of Percentage of Compliance to Staff-Requests](image)

Figure 1: Visual Analysis of Baseline Data

Data after the first week of intervention the compliance rate increased to a mean of 76.0%, with a standard deviation of 0.09, with a range of 0.17. After week two, the compliance rate mean remained the same at 76.0%, with a standard deviation of 0.29, and a range of 1.0. The missing data point during the second week of intervention was a result of the participant being away from the independent living facility, and therefore, no data could be obtained for this day. The third week of intervention yielded a mean of 83.0%, with a standard deviation of 0.29, and a range of 1.0.
After the final week of intervention, all data was averaged, and the mean increased to 95.0%, with a standard deviation of 0.26, and a range of 1.0 due to unexpected participant absence. The table below shows all baseline and intervention data.

Table 1: Calculations for Baseline and Intervention Data on Compliance to Staff-Requests

<table>
<thead>
<tr>
<th>Type</th>
<th>Baseline</th>
<th>Intervention Week 1</th>
<th>Intervention Week 2</th>
<th>Intervention Week 3</th>
<th>Entire Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>39.0%</td>
<td>76.0%</td>
<td>76.0%</td>
<td>95.0%</td>
<td>83.0%</td>
</tr>
<tr>
<td>Median</td>
<td>33.0%</td>
<td>83.0%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>SD</td>
<td>0.162</td>
<td>0.09</td>
<td>0.29</td>
<td>0.13</td>
<td>0.26</td>
</tr>
<tr>
<td>Slope</td>
<td>-3.96</td>
<td>17.5</td>
<td>2.59</td>
<td>10.5</td>
<td>9.71</td>
</tr>
<tr>
<td>Range</td>
<td>0.17</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

When the average compliance rate during intervention was compared to the average compliance rate during baseline, there was a 44.0% increase in compliance from baseline to the final day of intervention.
Figure 2: Visual Analysis of Baseline and Intervention Data without Trend Line

The significant drops in percentage of compliance during intervention on days 18, 21, and 25 were due to unexpected participant absence for the entire, or part data recording intervals.
Chapter V: Discussion

Summary of Findings

The baseline data indicated that the average percentage of compliance to self-care tasks was at 36.0%, which increased to 95.0% by the end of intervention. The data obtained during the study supported that the token economy intervention program resulted in a mean increase of 59.0% compliance rate after implementation of the intervention. The token economy was considered successful in increasing compliance to staff requests. The visual data analysis confirmed the initial hypothesis that implementing a token economy within an independent living facility would increase compliance to staff requests for an adult woman with Williams Syndrome.

The data obtained in the present study provided the field of Applied Behaviour Analysis with information pertaining to the use of a token economy with a single participant with a specific disorder and within their home. Most of the literature relevant to token economy procedures has centered on using this intervention procedure within group-based clinical or educational settings, such as classrooms. The token economy system presented in this thesis provided new information on the application and use of a token economy system in a different (individual rather than group based) setting, and with a different population (i.e., an individual with Williams Syndrome) than has been studied in the published literature. The present study confirmed the hypothesis that a token economy system could be effective when implemented specifically for one individual as opposed to a group of individuals. Most research on token economies had been done problem classroom behaviours, and individuals with Autism. The current study demonstrated that a token economy procedure could be effective when implemented within an independent living facility with an individual with Williams Syndrome.

Strengths of the Research Study

The research study provided the independent living facility with a behavioural management program that was effective at reducing some challenging behaviours that were causing tension in the relationships between the staff members and the person supported as mentioned by the agency staff. Additionally, the token economy system helped the person supported to develop new skills that it is hoped will increase her quality of life, and her health through increased compliance to maintaining her own hygiene, eating properly, and maintaining her home. Improvements were seen in hygiene practices specifically, where the person supported had begun taking four to five showers a week as opposed to the previous one to two showers prior to intervention. Other improvements were seen in the individual’s compliance to eat meals according to her dietician’s recommendations, and also began cleaning her room twice a week, rather than zero times a week prior to intervention. The token economy was designed and implemented alongside the staff and program manager within the agency, ensuring that each person who interacted with the person supported felt comfortable with the program. It is hoped that this will increase the likelihood the program will continue after the student placement. Similarly, the token economy system was designed around the needs and schedules of both staff.
members, and the person supported, ensuring that future use of the token economy would not interrupt daily schedules and routines. Finally, each component of the token economy was created and implemented in a manner that allowed it to be customizable, allowing staff to change the intervention to best suit the person supported should her individual needs change, and also allowing staff to apply the same techniques to other clients with other behavioural needs.

Limitations of the Research Study

There were a few significant limitations to the research study, the first being client schedules. Data collection during baseline and intervention was disrupted on several occasions due to changes in the client’s schedule. The independent living facility aims to ensure that the individuals supported are not confined to strict evening routines, allowing the person supported to plan outings with family and friends. Often, data collection would be disrupted half-way through the expected observation period, or the client would not be home at all during the evening when the placement student was at the agency. The unpredictable nature of the client’s schedule allowed for gaps of time between data observation periods and missing data. Additionally, the gaps of time between baseline data collection opportunities created a significant delay before intervention could be implemented. The delay in the onset of implementation of the intervention resulted in a reduction in the length of the intervention phase. More time to collect data on the intervention phase would have been beneficial to ensure provide evidence of longer-term data stability.

Additionally, the current study was a single case design, and there was no control group present for comparisons to be made. Although the current study shows relatively robust results, the results obtained are not generalizable to a variety of participants, settings, or disabilities.

Multilevel Challenges

When working with individuals within independent living agencies, many problems or challenges may arise. When these agencies are specifically designed to house individuals with developmental disabilities, challenges can be identified at the client, program, organizational, and societal levels.

Client Level

It was challenging to work with an individual with Williams Syndrome because this form of developmental disability is often accompanied by high levels of anxiety, manipulative behaviours, and physical health concerns. When working with these individuals, it is often challenging to determine which statements are true, and which ones are not.

Additionally, elevated levels of anxiety in combination with other behavioural problems can result in more behavioural concerns, and/or higher instances of the target behaviour being observed, resulting in skewed or unrepresentative data collection. During the course of the study, the participant exhibited a number of challenging behaviours as a means to obtain attention from the supporting staff, such as reporting false episodes of abuse from other individuals, intentionally faking illnesses with staff, or other residents in the agency to obtain attention from the staff or from medical professionals. Furthermore, the individual would present false accounts
of suicidal ideation on numerous days in which the agency would have to take precautionary measures and would be required to file reports and provide the individual with one-on-one attentional support to ensure client safety. The participant also became emotionally uneasy when placed into perceived stressful situations, in such circumstances the participant would begin to cry uncontrollably, or become too hostile, in such situations the student researcher was not provided access to the client, thus resulting in significant delays in behavioural observations and data collection intervals.

Program Level

Due to elevated levels of anxiety experienced by the participant had a difficult time complying and participating in the intervention program without repeated prompting and reminding of potential reinforcement options. Often, when anxiety levels are elevated, the individual displayed avoidance or escape behaviours to refrain from experiencing the anxiety-provoking situation again. In attempts to avoid or escape an anxiety-provoking situation, the participant would also attempt to manipulate those around her through exhibiting behaviours such as lying or over-exaggeration as discussed above. In the time-sensitive circumstances, these behaviours caused delay of data observation, collection, and intervention implementation. The current research study was implemented over a structured time frame, and the participant displayed other challenging behaviours during the course of the intervention, which resulted in delays of data collection, and implementation of the token economy. If more time had been available, the research would have continued to more challenging intervention phases, such as increasing the number of tokens required at the end of each day for the participant to receive reinforcement. However, due to time sensitivity and the presence of other challenging behaviours, this was not able to occur.

Organizational Level

For staff working within independent living facilities, communication with other team members is essential. However, in the agency most of the staff members do not have fixed shifts, so consistency was difficult to obtain. Additionally, shift work makes communication difficult because information passed on between outgoing staff to the oncoming staff can be misinterpreted and thus communicated falsely thereafter. Communication books and logs were somewhat helpful, but often times, not all information was documented properly and additional communication errors occurred. When implementing a behavioural program in such settings, it was difficult to ensure that all staff understood the context, guidelines, and implementation procedures of the intervention because communication was fairly scarce and information was easily misunderstood. For the current study, the researcher created a video tutorial which was played during a mandatory staff meeting, and also created a staff training manual on the token economy protocols to help alleviate this issue. When working in the independent living facilities it was essential that the staff meet in one location (i.e. a team meeting) to learn about the procedure, otherwise, the intervention would not have been implemented consistently across all of the mediators or staff members.
Societal Level

Little research exists on the effectiveness of using a token economy system in independent living facilities, or the use of token economies with individuals who have developmental disabilities. Providing the field of Applied Behaviour Analysis with more current literature on the use of token economies in settings other than classrooms and work environments would allow for a better application of token economy systems. Additionally, more research on such topics would allow community organizations, such as independent living facilities to adapt token economies for a more broad range of behavioural concerns, with a variety of different populations. Providing researchers with more support and funding for research projects similar to the current research study would be beneficial to obtain a better understanding of the applications of token economies.

Recommendations for Future Research

Future research pertaining to the use of a token economy system within independent living facilities should look at whether or not token economies are as effective when used to address different target behaviours. Many independent living facilities support people with a broad range of behavioural needs, such as, aggression, self-injurious behaviours, and biting behaviours. Research providing more information on other behavioural targets may allow such organizations to support more people with varying behavioural challenges and reduce stress on staff to follow the strict guidelines, time constraints, and paperwork associated with the token economy system, and to increase the, quality of life for the individuals because other intervention procedures may be better suited for other individuals, or may be more easily generalized to other settings.

Individuals with Williams Syndrome are generally high functioning, and thus have a less challenging time adapting to new routines, and learning new behaviours. Further research should examine if token economy systems are also effective when working with more challenging populations such as those who exhibit highly aggressive behaviours, or those with borderline personality disorders, or low-functioning Autism. Much of the current research and literature on token economy systems has focussed on regular classroom students with behavioural needs. Determining whether token economies can be effective when working with other populations such as those with developmental disabilities, mental health diagnoses, acquired brain injury, and within other settings, such as assisted living, would broaden the field of behavioural psychology.

The next step based on the results of the present study would be to replicate the thesis with more participants, rather than a single case design. Although the data obtained in this thesis suggests the token economies can be successful in increasing compliance with an individual with Williams Syndrome in an assisted living facility, the study may not yield the same results when implemented with other individuals or a larger group of individuals.

The current study was able to confirm the hypothesis that token economy systems can be effective when working with one participant with WS within a living facility. The study aimed to initiate research on new applications for token economy systems to enhance the understanding and use of token economies within the Applied Behavioural Analysis field. Future research
should focus on continuing to investigate other potential settings in which token economies may be effective, as well as researching other populations that may benefit from a token economy intervention.
References


Appendix A: Consent Form

Project Title: Evaluating the Effectiveness of Using a Token Economy to Increase Compliance of Staff Requests with a 24-Year-Old Female with Williams Syndrome.

Principal Investigator: Donna Searles
Name of supervisor: Yolanda Fernandez
Name of Institution: St. Lawrence College
Name of sponsor: N/A
Name of part partnering institution/agency: N/A

Invitation

You are being invited to take part in a research study. I am a student in my 4th year of the Behavioural Psychology program at St. Lawrence College. I am currently on placement at Christian Horizons. As a part of this placement, I am completing a research project (called an applied thesis). I would like to ask you for your help to complete this project. The information in this form will help you understand my project. Please read the information carefully and ask all the questions you might have before you decide if you want to take part.

Why is this study being done?

My project is designed to help you become more comfortable with some of the tasks that your staff, peers, or parents ask you to do. Sometimes when people ask us to do things, it can be stressful, and because of that stress, we do not want to participate. I hope that by working together, and through the things we do, we can work on making these requests and tasks less stressful and make it easier for you to do them.

What will you need to do if you take part?

If you choose to take part in this study you will be asked to spend some time talking to me about what requests make you feel stressed, and what type of requests really bother you. I will be working with you to help determine which requests are hard for you, and to come up with ways for help make completing tasks a little easier from Monday to Friday for a total of ten weeks, between the hours of 4pm-9pm. During these hours you will be able to continue your regular routines, but sometimes the staff or I may ask you to perform certain household or self-care tasks for the purpose of my project. For example, while you are relaxing and watching TV after school, we may ask you to pack your lunch for the next day, or to take your shower.

What are the potential benefits of taking part? (If applicable)

I would like to work with you because I believe that if we can come up with a way to make these tasks less stressful, that your relationships with your friends, staff, and family will get stronger. I also believe that through working together, we can help you to be able to learn a lot of...
fun ways to complete certain tasks that make you stressed out. Additionally, if you participate in
the study, you might start to feel good from knowing that you can help staff and others by
completing certain tasks, which might help you to feel more independent.

What are the potential benefits of this research study to others? (if applicable)
After the project is complete, the staff in your building may be able to do the same things
to help relieve stress for other people, which would also make them feel good and strengthen
their relationships too. Also, the information from this project has the potential to help other
students and researchers assist other people in different locations.

What are the potential disadvantages or risks of taking part?
The risks in this project are minimal, but sometimes you might become tired of being
asked to complete certain tasks. Although none of the tasks will be dangerous or too difficult for
you, some tasks might seem like they could take a long time, or they might be boring. You may
find these requests annoying or stressful.

What happens if something goes wrong?
Although your safety will not be put at risk, if you begin to feel upset, frustrated, or
annoyed, you are able to talk to myself or the other staff about the research project and about
your feelings.

Will my information you collect from me in this project be kept private?
Your personal information will not be shared with anyone outside of the Christian
Horizons building. All information that is gathered will be stored, encrypted, and locked away
safely to ensure that you are protected. Your name and any identifying information will be
removed from any documents that I submit to my school, and all of your personal information
will remain at Christian Horizons in a secure location. This consent form and the information
will remain at the agency in a locked filing cabinet for seven years.

Do you have to take part?
Participating in the research project is done on a volunteer basis; you are not obligated to
participate. If at any time you decide that you no longer want to participate in the project, you are
allowed to withdraw at any moment without any consequences.
If you decide that you do not want to be involved in my research project anymore, you
can ask me not to use any of the information or data that I have found to be used. You can do this
at any time, and you will not get in trouble for this.

Contact for further information
This project has been approved by the Research Ethics Board at St. Lawrence College.
The project was developed under the supervision of Dr. Yolanda Fernandez my supervisor from
St. Lawrence College. If you have any additional questions or concerns, feel free to ask me,
Donna Searles (dsearles24@sl.on.ca). You can also contact my College Supervisor.
(Yolanda.Fernandez@csc-scc.gc.ca) or you may also contact the Research Ethics Board at reb@sl.on.ca.

Consent

If you agree to take part in this research project, please complete the following form and return it to me as soon as possible. A copy of this signed document will be given to you for your own records. An additional copy of your consent will be retained at the agency for one year.

By signing this form, I agree that:

✓ The study has been explained to me.
✓ All my questions were answered.
✓ Possible harm and discomforts and possible benefits (if any) of this study have been explained to me.
✓ I understand that I have the right not to participate and the right to stop at any time.
✓ I am free now, and in the future, to ask any questions I have about the study.
✓ I have been told that my personal information will be kept confidential.
✓ I understand that no information that would identify me will be released or printed without asking me first.
✓ I understand that I will receive a signed copy of this consent form.

I hereby consent to take part.

<table>
<thead>
<tr>
<th>Participant Name</th>
<th>Signature of Participant</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student Printed Name</th>
<th>Signature of Student</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix B: Frequency Data Recording Sheet

Frequency Data Recording Sheet

Date: ___________________________

Behaviour: ________________________________________________________________

- Baseline
- Intervention

<table>
<thead>
<tr>
<th>Time</th>
<th>Requests Presented</th>
<th>Tally</th>
<th>Total</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00 pm - 5:00 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5:00 pm - 6:00 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6:00 pm - 7:00 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7:00 pm - 8:00 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:00 pm - 9:00 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Daily Total: | |

Compliance %: | |
Appendix C: Compliance Probability Checklist

Name: ____________________  Date: ____________________  Completed By: ____________________

Listed below are a series of requests you may present within a given day. What is the likelihood that the person will comply to this request if the request is stated only once? Please check the appropriate box beside each request.

<table>
<thead>
<tr>
<th></th>
<th>Almost Always 76-100%</th>
<th>Usually 51-75%</th>
<th>Occasionally 26-50%</th>
<th>Rarely 0-25%</th>
<th>Skill Not Learnt</th>
<th>This request is important to me.</th>
<th>Group Or Individual?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Room Cleanliness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make Bed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Put Clothes Away</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empty Garbage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do Laundry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hygiene</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bathe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brush Teeth (a.m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brush Teeth (p.m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change Clothes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brush Hair</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wash Hands before meals/ when in kitchen</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
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<tr>
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</tr>
</tbody>
</table>

**Meal Times**

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<tr>
<th>Eat Meal</th>
<th>Other:</th>
<th>Other:</th>
<th>Other:</th>
<th>Other:</th>
<th>Other:</th>
<th>Other:</th>
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</thead>
<tbody>
<tr>
<td>Help Prepare Meal</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
</tr>
<tr>
<td>Follow Diet Plan</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
</tr>
<tr>
<td>Do Dishes</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
</tr>
<tr>
<td>Make Lunch</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
</tr>
<tr>
<td>Eat Your Vegetables</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
</tr>
<tr>
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<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
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</table>

**Social/Other**

<table>
<thead>
<tr>
<th>Share TV With Roommate</th>
<th>Other:</th>
<th>Other:</th>
<th>Other:</th>
<th>Other:</th>
<th>Other:</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talk to Staff when upset</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
<td>Other:</td>
</tr>
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<td>Other:</td>
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<table>
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<tr>
<th>Other:</th>
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</table>
Appendix D: Functional Assessment Screening Tool

**FUNCTIONAL ASSESSMENT SCREENING TOOL (FAST)**

Name: ______________________ Age: __________ Date: __8/15/14__________

Behavior Problem: Noncompliance to Staff Requests

Informant: K.D. Interviewer: Donna Smith

To the Interviewer: The Functional Analysis Screening Tool (FAST) is designed to identify a number of factors that may influence the occurrence of problem behaviors. It should be used only as an initial screening tool and as part of a comprehensive functional assessment or analysis of problem behavior. The FAST should be administered to several individuals who interact with the person frequently. Results should then be used as the basis for conducting direct observations in several different contexts to verify likely behavioral functions, clarify ambiguous functions, and identify other relevant factors that may not have been included in this instrument.

To the Informant: After completing the section on “Informant-Person Relationship,” read each of the numbered items carefully. If a statement accurately describes the person’s behavior problem, circle “Yes.” If not, circle “No.” If the behavior problem consists of either self-injurious behavior or “repetitive stereotyped behaviors,” begin with Part I. However, if the problem consists of aggression or some other form of socially disruptive behavior, such as property destruction or tantrums, complete only Part II.

Informant-Person Relationship

Indicate your relationship to the person: __________ Parent __________ Teacher/instructor __________ Residential Staff __________ Other

How long have you known the person? __________ Years __________ Months

Do you interact with the person on a daily basis? __________ Yes __________ No

If “Yes,” how many hours per day? __________ If “No,” how many hours per week? __________

In what situations do you typically observe the person? (Mark all that apply)

- Self-care routines __________
- Academic skills training __________
- Meals __________
- When (s)he has nothing to do __________
- Leisure activities __________
- Work/vocational training __________
- Evenings __________
- Other: ____________________________

Part I. Social Influences on Behavior

1. The behavior usually occurs in your presence or in the presence of others __________ Yes __________ No

2. The behavior usually occurs soon after you or others interact with him/her in some way, such as delivering an instruction or reprimand, walking away (ignoring) him/her, taking away a “preferred” item, requiring him/her to change activities, talking to someone else in his/her presence, etc. __________ Yes __________ No

3. The behavior often is accompanied by other “emotional” responses, such as yelling or crying __________ Yes __________ No

Complete Part II if you answered “Yes” to item 1, 2. or 3. Skip Part II if you answered “No” to all three items in Part I.

Part II. Social Reinforcement

4. The behavior often occurs when he/she has not received much attention __________ Yes __________ No

5. When the behavior occurs, you or others usually respond by interacting with him/her in some way (e.g., comforting statements, verbal correction or reprimand, responses blocking, redirection) __________ Yes __________ No

6. (s) he often engages in other annoying behaviors that produce attention __________ Yes __________ No

7. (s) he frequently approaches you or others and/or initiates social interaction __________ Yes __________ No

8. The behavior rarely occurs when you give him/her lots of attention __________ Yes __________ No

9. The behavior often occurs when you take a particular item away from him/her or when you terminate a preferred leisure activity (if “Yes,” identify: ____________________________ ) __________ Yes __________ No

10. The behavior often occurs when you inform the person that (s) he cannot have a certain item or cannot engage in a particular activity (if “Yes,” identify: ____________________________ ) __________ Yes __________ No

11. When the behavior occurs, you often respond by giving him/her a specific item, such as a favorite toy, food, or some other item. (if “Yes,” identify: ____________________________ ) __________ Yes __________ No

12. (s) he often engages in other annoying behaviors that produce access to preferred items or activities __________ Yes __________ No

13. The behavior rarely occurs during free time or when you place other items demands on him/her. (if “Yes,” identify the activities: ______ self-care ______ academic ______ work ______ other) __________ Yes __________ No

Adapted from the Florida Center on Self-Injury.
14. The behavior often occurs during training activities or when asked to complete tasks.  
15. (S)he often is noncompliant during training activities or when asked to complete tasks.  
16. The behavior often occurs when the immediate environment is very noisy or crowded.  
17. When the behavior occurs, you often respond by giving him/her a brief “break from an ongoing task.”  
18. The behavior rarely occurs when you place few demands on him/her or when you leave him/her alone.  

Part III. Nonsocial (Automatic) Reinforcement  
19. The behavior occurs frequently when (s)he is alone or unoccupied.  
20. The behavior occurs at relatively high rates regardless of what is going on in his/her immediate surrounding environment.  
21. (S)he seems to have few known reinforcers or rarely engages in appropriate object manipulation or “play” behavior.  
22. (S)he is generally unresponsive to social stimulation.  
23. (S)he often engages in repetitive, stereotyped behaviors such as body rocking, hand or finger waving, object twirling, mouthing, etc.  
24. When (s)he engages in the behavior, you and others usually respond by doing nothing i.e., you never or rarely attend to the behavior.  
25. The behavior seems to occur in cycles. During a “high” cycle, the behavior occurs frequently and is extremely difficult to interrupt. During a “low” cycle the behavior rarely occurs.  
26. The behavior seems to occur more often when the person is ill.  
27. (S)he has a history of recurrent illness (e.g., ear or sinus infections, allergies, dermatitis).  

Scoring Summary  
Circle the items answered “Yes;” if you completed only Part II, also circle items 1, 2, and 3.  

Likely Maintaining Variable  

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Comments/Notes:
Appendix E: Reinforcer Survey

Directions: Review each of the items below with your student. For each item, mark whether the student finds it to be a preferred reinforcer or reward.

1...2...3...4...5 One on One outing with Staff (When Available)
Not Liked | Liked

1...2...3...4...5 Drives from Staff to see boyfriend (When Available)
Not Liked | Liked

1...2...3...4...5 Awarded a trophy, certificate, or other honor for compliance.
Not Liked | Liked

1...2...3...4...5 Allowed to call parents/friends (if possible staff can give an update on how will the individual did).
Not Liked | Liked

1...2...3...4...5 Play a game with a friend/staff
Not Liked | Liked

1...2...3...4...5 Receive a sticker
Not Liked | Liked

1...2...3...4...5 Receive craft supplies
Not Liked | Liked

1...2...3...4...5 Nail polish put on by staff (when available)
Not Liked | Liked
Allowed to sit in the front seat when on an outing with staff and others

1...2...3...4...5  Allowed to choose the music to be played in the vehicle when on outings (for one way)

Not Liked  |  Liked

Not Liked  |  Liked
# Appendix F: Table of Raw Data

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Appendix G: Visual Analysis of Baseline Data with Trend line

Baseline Data of Percentage of Compliance to Staff-Requests
Appendix H: Visual Analysis of Baseline and Intervention Data with Trend Line

Using a Token Economy to Increase the Frequency of Compliance in a 27-Year-Old Female with Williams Syndrome.