Using Reinforcement to Reduce Handholding Restrictions with a 55-Year-Old Man with Down Syndrome

By

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Dedication

I would like to dedicate this thesis to my mother and sister, Cindy Carey and Haille Milne.

I would also like to thank my Grandparents Wayne and Yvette Carey.

Next I would like to dedicate this thesis to my good friends Claire Lubun, Taylor Beaubien and Megan Gougeon, who through working and studying together helped me along the way in the program, and shared some laughs along the way.

Finally, I would like to mention Dakota Mazzeo. I wouldn’t have made it this far without the amount of work we did together. Thanks for all the good times along the way.
Abstract

Individuals with Down syndrome often display aggression and or acting out towards other and objects within their vicinity (Feeley & Jones, 2006). The individual in this thesis would hit other individuals when walking near them, causing the need for a hand holding restraint to be put in place. This aggressive behavior restricted interaction with others and community involvement. To discover the function that maintained the problem behaviour, the staff at the agency conducted a functional analysis with three conditions: control, alone, and attention. Informal interviews with staff and a Questions About Behaviour Function survey were conducted. The main function of behaviour was found to be attention across all assessments. Based on this knowledge, positive reinforcement literature was reviewed and studied. Based on the individual’s disability, the literature pointed in the direction of using noncontingent reinforcement, as well as differential reinforcement of alternative behaviours. Training staff was an important component of the intervention. The individual had a 24/7 residential staff team, and a day program team working with the individual were both trained in delivering the intervention. Results from the intervention show that the program was effective in reducing aggression and acting out behaviour. During the 28 days of baseline, 41 instances of aggression and acting out was recorded, and during the 33 days of intervention there were only 33 instances of aggression and acting out recorded. More studies using techniques such as NCR and DRA should be implemented with individuals with developmental disabilities to see if they are reliable and valid interventions to implement.
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Table of Contents

Chapter I - Introduction .................................................................8
Chapter II - Literature Review..........................................................10
Chapter III - Method ........................................................................20
Chapter IV - Results........................................................................24
Chapter V - Discussion.....................................................................28
References.........................................................................................30
Appendix A - Consent Form.................................................................34
Appendix B - Aggression and Acting Out Data Collection Sheet.........37
Appendix C - Handholding Data Collection Sheet...........................39
Appendix D – Questions About Behaviour Function Sheet................41
Appendix E – Functional Analysis Conditions..................................44
Appendix F – Intervention Procedure Write Up...............................45
Appendix G – Functional Analysis Results.......................................46
Appendix H – Handholding Results ..................................................47
Appendix I – Baseline and Intervention Results...............................48
List of Tables

Table 1 – Occurrences of Aggression Per Month .............................................26
List of Figures

Figure 1 - Results of Functional Analysis ..................................................25
Figure 2 - Baseline and Intervention Data for Handholding.........................26
Figure 3 - Baseline and Intervention Data for Aggression/Acting Out ..........27
Chapter I: Introduction

Individuals who are diagnosed with Down syndrome are at risk of exhibiting challenging behaviours that are especially difficult for staff and caregivers (Feeley & Jones, 2006). Aggression is a maladaptive behaviour in society that needs to be reduced and eliminated. Individuals diagnosed with Down syndrome require assistance with day-to-day life and can sometimes exhibit maladaptive behaviours such as aggression, and therefore may have difficulties fitting in. To reduce these behaviours, it is a good idea to create a behavioural program to decrease the unwanted behaviour and increase an appropriate alternative behaviour. Noncontingent reinforcement (NCR) is a time-based schedule of reinforcing stimuli, and has been around since the 1970s (Phillips & Mudford, 2011).

The agency where this project was conducted has a main goal to help individuals with intellectual disabilities partake fully within the community with independence and dignity. The individual in this study had restrictions where he needed both of his hands held when walking near people as to not hit them. This has resulted in him not being able to go out in the community very often. In the individual’s behavioural program, the restriction of handholding was to be eliminated, which made this a suitable topic to design a behavioural intervention around.

All the behaviours defined in this paragraph can have multiple meanings, therefore it was important to operationally define them for this thesis. Acting Out/Aggression: any occurrence where the individual hits, scratches, grabs, or pinches another individual. Property Damage: any occurrence where the individual throws or knocks over an object. Handholding: handholding is defined as holding the individuals hand to prevent him acting out or aggressive behaviours as defined above. Handholding is not defined as holding the individuals hand when he initiates it, or when he needs help balancing.

The goal of this study was to reduce aggressive and property damage behaviour when near people, so the individual would not need his hands held, and can participate in more activities. It was proposed that positive reinforcement of an appropriate alternative behaviour combined with noncontingent reinforcement would be helpful in reducing aggressive or acting out behaviour, thereby reducing handholding.

The literature review provides the rationale as to why noncontingent reinforcement and differential reinforcement of alternative behaviours was used. The method section will provide a description of the participant, the design of the program, the setting, the measures, and the procedures. The results section presents the baseline and intervention data. The discussion section presents conclusions and covers the strengths and limitations of the study, multilevel challenges, implications for the Behavioural Psychology field, and recommendations for future research.
Chapter II: Literature Review

The individual in this study has Down syndrome, so it is important to understand both the Down syndrome as well as intellectual disabilities, and potentially why these individuals engage in challenging behaviours. This literature review focuses on individuals who have an intellectual disability and exhibit challenging behaviours, how these challenging behaviours are perceived by staff, staff training, and intervention techniques that use positive reinforcement.

Intellectual Disabilities

An intellectual disability is categorized by substantial limitations in adaptive behaviour, as well as intellectual functioning that occurs before the individual is 18 years of age. (Mefford, Batshaw, & Hoffman, 2012). The traditional diagnosis of intellectual disability is when the intelligence quotient (IQ) is below 70, and is usually made in adolescence (Mefford et al.). Another way to assess whether an individual has an intellectual disability when they are younger is to test for developmental delays, which include cognitive, speech, and motor delays (Mefford et al.). Some examples of intellectual disabilities include: Fragile X syndrome, Down syndrome, Prader-Willi Syndrome, and fetal alcohol spectrum disorder. Fetal alcohol spectrum disorder is the only one of these intellectual disabilities that do not involve a chromosome in some sort (Down syndrome has an extra copy of chromosome 21, fragile X involves a chromosome mutation, and Prader-Willie syndrome is caused by an abnormality in chromosome 15) (Author unknown, House of No Steps, 2015). State that fragile X is the most prevalent intellectual disability (Mefford, Batshaw, and Hoffman, 2012). Individuals with intellectual disabilities lack adaptive life skills regarding social, conceptual, and practical skills. Examples of these skills, or the lack thereof, would be using technology, personal care, and managing personal belongings (McClure & Donahue, 2009). Individuals with intellectual disabilities can be diagnosed within a range of mild intellectual disability levels, from mild to profound. An individual with a mild intellectual disability can engage in conversations, as well as complete tasks independently (McClure & Donahue). An individual with a profound intellectual disability would need constant attention from other individuals, such as family or staff, and would be completely dependent on them; these individuals also have a limited vocabulary and may not be able to engage in any sort of communication (McClure and Donahue). Individuals with intellectual disabilities have been found to have higher levels of aggression compared to individuals without intellectual disability (Knotter, Wissink, Moonen, Stams, & Jansen, 2013). Support this statement by saying that there is a larger prevalence of aggressive and challenging behaviours within the population of individuals diagnosed with an intellectual disability; and aggression is the most frequent reason that these individuals are referred to agencies for additional support (Poppes, van der Putten, and Vlaskamp, 2015).

Defining Challenging Behaviour

As mentioned above, Feeley and Jones (2006) explain that individuals with Down syndrome may also exhibit challenging behaviours, and these behaviours can make it quite difficult for caregivers and professionals to work with these individuals. Challenging behaviour is defined as injury to people, as well as causing damage to the environment around the individual (Doss & Reichle, 1991, as cited by Feeley & Jones, 2006). The individual in this study had two behaviours that were the targets for behavior modification, aggression/acting out behaviour, as well as property destruction. Challenging behaviour will be the umbrella term for these two behaviours. Feeley and Jones state that individuals with Down syndrome, compared to typically developing individuals, demonstrate higher rates of noncompliance, have a harder time keeping their attention, and exhibit social withdrawal. Individuals with Down syndrome have
The extra chromosome in individuals with Down syndrome can increase the likelihood of challenging behaviours starting at infancy, and continuing throughout adulthood, these behaviours can interrupt learning opportunities throughout the individual’s lifetime (Feeley & Jones, 2006). Articles specifically about Down syndrome were hard to come by, because many articles group people with intellectual disabilities together.

Client/Staff Relations

Clients who engage in aggressive behaviours may have difficult relationships with their workers (Knotter, Stams, Moonen, & Wissink, 2016). Staff stress can increase when it is unknown how the aggressive behaviour should be approached and treated properly (Knotter, Wissink, Moonen, Stams, & Jansen, 2013). Challenging behaviours are influenced by others actions, as well as the environment around them (Poppes, van der Putten, & Vlaskamp, 2015). Knotter et al. (2013) back this statement up by saying that staff can play a large role in the maintenance and development of challenging behaviour. For example, staff may need to seclude or physically intervene with the individual, and this intervention may be counterproductive and may possibly be positively reinforcing for the individual (Knotter et al. 2013). Poppes et al. also found that there was no correlation in the frequency of challenging behaviour exhibited with more experienced staff as compared to less experienced staff, which underlines why it is important that the entire staff team needs to create and implement an intervention together in order to be consistent when applying it. Knotter, Wissink, Moonen, Stams, and Jansen (2013) conducted their first study on staff reactions and attitudes to the aggression of clients with intellectual disabilities. They had a sample of 121 staff from 20 different staff teams. In their next study, conducted by Knotter, Stams, Moonen, and Wissink (2016), their sample was much larger, with 475 staff from 71 teams. Their aim for both studies was to describe the extent to which staff provided attention to the client or if the staff ignored the client’s aggression and/or clients with disabilities. It is important to note that in their 2013 study, 92% of the sample were women, while in the 2016, the proportion of women was lower, at 67.8%. An interesting finding in relation to staff gender is that, in their 2013 study, they found that staff teams with a higher percentage of men did not use interventions that limited the independence of the client. In the 2016 study, they found that when women were acting individually, they responded less to aggression as contrasted to when they worked as part of a team, where they were more likely to report that they responded to aggressive behaviours. The conclusion the researchers drew in the 2013 study was that shared team attitude toward aggressive behaviour was more influential than individual attitudes, such that it is important when implementing an intervention, for the whole team to ‘on the same page’ when working with aggressive individuals with an intellectual disability. In the 2016 study, the researchers made an important distinction in that a positive team environment does not necessarily mean that their response to aggression will be consistent and could possibly show a rejecting attitude towards these individuals. To develop effective programs, all staff must be trained appropriately to make interventions work. These findings about staff attitudes and team consistency are relevant to the present situation, because the individual in this study has two staff teams, one at home, and one at the day program he attends. It is very important that both teams stay consistent in their response to the individual, so as to help decrease aggression in both the home and day program. It is also important to note that at home, his staff team mainly consists of women, while at the day program his staff is mostly men.
Positive Reinforcement to Reduce Challenging Behaviour

Functional Analysis

The implementation of a functional analysis (FA) can provide workers with effective ways to determine the different functions of aggressive or destructive behaviour (Thompson, Fisher, Piazza, & Kuhn, 1998). A FA is used to examine multiple functions of behaviour, and put the results into a graph to determine the function maintaining the maladaptive behaviour. While FA can identify the function of behaviour in most cases, a few studies have been inconclusive. It is important to note that functional analysis is sometimes perceived as unethical because challenging behaviour is being provoked on purpose. For this reason, consent from a substitute caregiver was obtained (Appendix A). The caregiver was given a written copy of the procedure, as well as a verbal explanation from staff. Since staff conducted a functional analysis with this individual to determine the function(s) of behaviour, it was important to understand the purpose of conducting a functional analysis, and also to know that it is a trusted and proven method of finding the function of behaviour. The rationale for using the FA was that the staff at the agency wanted to use one of the best methods to identify the function of behaviour.

Reinforcement

Mayer, Sulzer-Azaroff, and Wallace (2014), explain that humans are naturally reinforced everyday (p. 73). Reinforcement is an observable event that occurs innately, and that people increase the rates of certain behaviours because they are positively reinforcing (p. 73). Reinforcement is subjective, but some examples of this may be a cold drink on a hot day, or a compliment from your boss, these reinforcements make you continue to have that cold drink on a hot day or to keep working hard to impress your boss. A natural setting is where the target behaviour usually occurs, and observation in these natural settings will provide a more complete and correct sample of challenging behavior (Miltenberger, 2012). Making sure that the individual is in a natural setting will allow for data collection to be as reliable as possible. If the individual is set up in a contrived setting for data recording, more or less challenging behaviour may be seen. The results of the functional analysis completed by staff has determined that the function maintaining challenging behaviour is attention. To reduce and ultimately extinguish challenging behaviour, the individual will be reinforced for pro-social behaviour, such as playing with toys instead of engaging in challenging behaviour. Therefore, the individual in this study will be positively reinforced by staff attention in the form of two methods: differential reinforcement of alternative behaviour and noncontingent reinforcement.

Differential Reinforcement of Alternative Behaviours

Differential reinforcement of alternative behaviour (DRA) is a method that involves distributing reinforcement of an appropriate alternative from otherwise challenging behaviour. A DRA procedure also involves ignoring the challenging behaviour, so as to not provide the individual with attention that reinforces and maintains it. (Romano & St Peter, 2017). A DRA is often applied to reduce challenging behaviours that are maintained by attention; this also has another benefit of creating a larger repertoire of appropriate behaviours for the individual (Shaw & Simms, 2009). In conjunction with the DRA, withholding attention while ignoring the challenging behaviour has been effective in eliminating the challenging behaviour, this is also known as extinction. (Shaw & Simms, 2009). DRA procedures are able to decrease challenging behaviour, while at the same time increase an appropriate alternative response in place of challenging behaviour, and if used correctly and consistently, DRA procedures seldom create unwarranted side-effects (Romano and St. Peter). Shaw and Simms opted to implement a differential reinforcement of other behaviours (DRO) schedule of reinforcement rather than a DRA. A DRO procedure involves reinforcing any other behaviour that is not challenging.
behaviour, which is slightly similar to a DRA, but reinforcing ‘other’ behaviours can occur more frequently. Romano and St. Peter compared DRA and DRO to see which would produce less resurgence of target behaviour. Their study had six participants who were minoring in psychology. The students sat at a computer, where dots would move across the screen. The DRO procedure went as follows: students were rewarded a point when they refrained from clicking the dot for two seconds, and clicks would reset the timer. The DRA procedure was that reinforcement given when the students clicked the dot every two seconds. It was found that resurgence of behaviour for the students was nearly identical when paired with a DRO than that of a DRA during baseline, reinforcement, and extinction phases. Because this was implemented with university-level students, instead of individuals with intellectual disabilities, the generalizability of its findings to this latter population is unknown. For future consideration, testing a similar method of comparing DRA and DRO interventions on individuals with intellectual disabilities would be informative. Since using a DRA has been found to be beneficial, it was decided to use a DRA procedure. Implementing a DRA procedure with the individual in this study was predicted to be effective because he would be rewarded for an appropriate alternative behaviour, and his challenging behaviour would be no longer reinforced.

Noncontingent Reinforcement

Phillips and Mudford (2011) explain that noncontingent reinforcement (NCR) can be used to help reduce challenging behaviours. Fisher et al. (1999) define noncontingent reinforcement as the delivery of positive reinforcement to an individual on a time-based schedule. Through NCR, the delivery of preferred reinforcement reduces problem behavior (Lambert, Bloom, Samaha, Dayton, and Kunnawatana, 2016). NCR is simple and usually nonintrusive for staff to implement (Lambert et al). Lambert et al. explain that NCR may be used as a first intervention to see if it helps suppress challenging behaviour before moving to a more in-depth or less socially recognized approach. NCR is also a good technique to implement while more appropriate and complex interventions are being developed. For example, fixed or variable ratios or intervals, as well as the multiple differential reinforcements. NCR results in reduced maladaptive behaviours, and is less labour-intensive because it does not require as much continuous observation as some other behavioural intervention techniques (Philips & Mudford, 2011). The implementation of NCR has been found to decrease challenging behaviours of both aggression and property damage (Noel & Getch, 2016), which was important for this study as the individual in this study engaged in aggression and property damage. If NCR is provided to the individual in this study, he may not need to engage in aggressive behaviours anymore. Because it is certain that he will be positively reinforced, therefore he won’t have to engage in the challenging behaviour to seek staff attention to be reinforced.

Staff Training

Staff training is another important component when creating an intervention for individuals with intellectual disabilities (Williems, Embregts, Hendiks, & Bosman, 2016). The individual in the study by Williams, Embregts, Hendiks and Bosman (2016) had residential staff as well as community staff, similar to the individual in this thesis report; this is an important piece because the two staff teams are not connected nor do they communicate with one another very often. It is important to train these two staff teams the same as to achieve consistency. The behavioural skills training (BST) model is an appropriate technique to use with staff teams when explaining an intervention. The BST model includes four steps: scripted instruction, oral feedback, modeling the skill to staff, and finally, letting staff rehearse the skill; either with the client, or the modeler (Fetherston & Sturmey, 2014). The BST model of staff training is an
POSITIVE REINFORCEMENT TO REDUCE CHALLENGING BEHAVIOUR

An effective device to use when training staff who work with individuals with an intellectual disability (Fetherston & Sturmey). The behavioural skills training model is also important because it provides staff with real life examples and feedback on how to implement intervention correctly. Providing the individual’s staff team for this thesis with the BST model is a good tool to help train staff on the intervention. Understanding staff interactions with individuals with Down syndrome is an important component to include when planning and implementing an intervention. It is important to be aware of staff perceptions of individuals with intellectual disabilities when dealing with challenging behaviours. For this reason, it is important to train staff directly as it is better practice than sending an email or memo.

The authors Piazza, Fisher, Thompson, and Kuhn appear in multiple articles that have been reviewed for this study: one article about DRA (1996), one article about a functional analysis (1998), and an article about NCR (1999). In each of these articles, the subject/population was an individual or individuals with intellectual disabilities, and all three studies focused on aggressive/acting out behaviours or destructive/property damage behaviours. In the work by Thompson et al. (1998), it was found that providing attention for an appropriate alternative behaviour reduced aggression. And the other studies by Piazza et al. (1996), and Fisher et al. (1999), where noncontingent reinforcement and differential reinforcement of alternative behaviour was used, it was found that both of these methods on their own were successful in reducing aggressive behaviour.

Individuals with intellectual disabilities such as Down syndrome show high rates of challenging behaviour within the population. This behaviour creates the need for interventions to be put in place. The challenging behaviour demonstrated by individuals with Down syndrome cause staff to possibly feel unsettled when working with the individual. For this reason, it is important to meet with staff and discuss clear and consistent directions when creating an intervention. Also, when creating an intervention, it is important to make sure the most effective assessments are used to correctly identify the function of the negative behaviour. In this case, staff at the agency decided that a functional analysis would be the most appropriate method of discovering the function of behaviour. The results of the functional analysis showed that the function maintaining the challenging behaviour or aggression was attention (positive or negative). Because of this, it was important to understand that individuals may be reinforced based on any kind of attention, simply because that individual is acting out in order for them to receive attention in any way. For example, if an individual acts out and gets scolded, the scolding won’t discourage the individual from repeating the behaviour because they got what they wanted, namely attention. For intervention, it was decided to create and implement a differential reinforcement of alternative behaviours paired with noncontingent reinforcement. These two methods are the most appropriate methods to use for this type of maladaptive behaviour, as well as with the population of intellectual disabilities. Lastly, it is important to not only inform staff of what the new intervention procedure is but to go to a team meeting or go to the residence when staff are working and verbally explain and train the staff on how to implement the program correctly and appropriately. Accordingly, it was hypothesized that aggressive behaviour would be reduced in a 55-year-old man with Down syndrome when pairing differential reinforcement of alternative behaviours with noncontingent reinforcement that is given to the individual at least once every 15 minutes.
Chapter III: Method

Participant

The participant in this study was a 55-year-old man who is diagnosed with Down syndrome. The individual had a limited vocabulary, only knowing certain words, phrases, and names. The individual was able to walk on his own but liked to hold staff’s hands to help with balance. He needed assistance in areas such as the bathroom and food preparation. He attended a day program that runs from Monday to Friday, where he participated in activities each day, such as bowling and helping with the food bank. This individual also is diagnosed with Type 2 diabetes, and his blood sugar was checked multiple times a day. He was referred by his behavioural therapist to implement a behavioural intervention to reduce aggression and property damage. The goal of the behaviour therapist is to reduce the hand holding restraint that is currently set in place, as well as reducing aggressive tendencies exhibited by this individual. This study was reviewed and approved by the Research Ethics Board at St. Lawrence College Kingston. Consent was obtained from the individual’s substitute caregiver, who was given a copy of the intervention procedure and the opportunity asked any questions she had regarding the proposed treatment (Appendix A).

Design

The proposed intervention was a single-subject case study using an AB design, in which A was the baseline and B was the intervention of non-contingent reinforcement and differential reinforcement of alternative behaviours. The dependent variables were handholding, aggression, and property damage. The operational definition of aggression was any success of: hitting, scratching, grabbing, and pinching. The operational definition for property damage was when the individual successfully threw or knocked over objects. The operational definition for handholding is when staff need to hold the individual’s hand to prevent any aggression, handholding is not defined as when staff hold the individual’s hand to help him balance, or when he reaches for staff’s hands to hold them. The independent variables in this study will be the non-contingent reinforcement and the differential reinforcement of alternative behaviours. Since data were already being collected by the client’s staff team, they continued to collect data and implement the intervention. To train the staff, three days were selected when multiple staff would be at the residence at once, to train as many staff as possible. Also, a treatment integrity checklist was created to ensure staff were implementing the intervention correctly.

Setting and Apparatus

The program was implemented at the individual’s home. It is important to note that he was out of the home Monday to Friday from 9:30 in the morning to 3:00 in the afternoon at the day program. Materials needed will be the individual’s preferred items and the data recording sheets. Another item needed for this study will be a motivaider, which is a timer that counts down from specific intervals (i.e. 15 minutes), and prompts staff to provide intervention. A unique feature of the house in which this individual lived, is that he had his own sensory room in the basement with preferred toys, where he went every day when he got home from the day program. The individual’s home setting was not altered.

Measures

The data will be collected by recording the frequency of observations of aggression, property damage, and handholding behaviours. Frequency recording is already in place for aggression and property damage for this individual (Appendix B) because it is the most effective way to collect the data for him throughout the day. Handholding will also be collected using frequency recording. A handholding data collection sheet will be made for this individual’s staff
team to fill out (Appendix C). A Questions About Behavioural Functioning (QABF) questionnaire was completed before this thesis project began (Appendix D). The QABF is an assessment tool used to interview a client’s worker or family member who interacts with the client on a frequent basis. The QABF was designed to assess antecedent behaviour and is reliable to conclude the proper function of behaviour for 84% of individuals studied (Matson, Bamberg, Cherry & Paclawskyj, 1999). There are 25 questions with scoring broken down into five categories of behavioural functioning: attention, escape, non-social, tangible, and physical. Staff fill out the checklist to the best of their abilities and then it is counted and scored. The higher the score the more likely that category is the function of behaviour. The information gathered from this assessment is important because it gives insight to why the client engages in particular behaviours. It was conducted with the individual’s day program facilitator. Informal interviews with staff were also conducted, discussing their thoughts on why this individual acts out. And finally, staff at the agency conducted a Functional Analysis of the individual to gain a solid understanding of why the individual engages in aggressive or property damage behaviours. The FA was created and implemented by staff based on the QABF results, as well as other indirect interviews with staff. The conditions tested for this individual were attention condition, and sensory condition. (Appendix E).

Procedure
A functional analysis was conducted (Appendix E for details) with the individuals to determine the function of behaviour. The agency decided to test three conditions: control, alone, and attention. In the control condition the individual had full access to his favourite toys, as well as staff attention. In the alone condition the staff told the individual that she is busy, and proceed to leave the room. In the attention condition, multiple staff were in the room and ignored the individual. Plastic cups were set up for all conditions to see if the individual would throw them. The individual’s sister wanted the sessions to be no longer than 5 minutes, instead of the proposed 10 minutes. Escape and tangible conditions were deemed unnecessary as there was miniscule evidence to suggest these would be the function of behaviour. Three conditions of control were run, four alone conditions were run, and 11 attention conditions were run. Staff predicted that the function maintaining the behaviour was attention, so decided to run more attention sessions. The attention condition was also tested more because the staff were trying to find the proper setting in which the individual would act out the most. One session had the individual act out eight times in the session, so the agency thought they found the setting that would make the individual act out the most. The remaining attention sessions were run on a different day, when the individual was quite tired, having been up since three in the morning and had a busy day. Results could not be replicated for the attention phase as the previous day of sessions, but agency decided the data pointed towards attention being the function maintaining negative behaviour.

The baseline phase ran from November 1, 2017 to November 27. The intervention phase began on November 28 until Dec. 30, for a total of two months of data collection. The chosen intervention procedure was an NCR positive reinforcement set to 15-minute intervals in which the client is to be reinforced. A procedure for staff was written (Appendix F) for use in training them. When obtaining consent from the substitute caregiver, the client’s sister, she said that it would be beneficial to have both interventions on the same 15-minute interval, where the client would get reinforced twice (one DRA and one NCR) per interval. Due to the sister wanting NCR and DRA on the same time frame, the intervention essentially turned into only an NCR, where the individual would get attention after 15 minutes was up. The intervention works as follows: 1)
the staff working with the individual is to wear a motivaider, as to keep track of the 15-minute intervals, 2) at the end of the 15-minute interval, the individual is to get positively reinforced for not acting out, 3) if the individual acts out he is to be ignored using extinction. This was agreed and consent was obtained.
Chapter IV – Results

Indirect Functional Assessments: QABF and Informal Staff Interviews

The QABF (Paclawskyj, Matson, Rush, Smalls, & Vollmer, 2000) results showed that attention-seeking was the highest function rated across all three conditions observed, with a score of 8 out of a possible 15, while non-social scored a 7. The QABF gives many scenarios for each function, the non-social function involved: self-stimulation, thinks they are alone, has nothing to do, engages in behaviour in a repetitive way, and enjoys engaging in the behaviour. Based on informal interviews with staff, attention was the main function of behaviour they identified. The staff observed the individual targeting other clients who were vulnerable and would show a strong reaction. Similarly, the researcher observed that the individual acted out more with staff who gave him a more exaggerated reaction than those who stayed calm when he acted out. Thus, the functional assessment interviews pointed to attention-seeking as the main function maintaining aggressive behaviour.

Direct Assessment: Functional Analysis

Since attention and non-social/alone functions were rated the highest, the staff at the agency decided to only run three conditions. The conditions were attention, alone, and control. As the graph below shows, the individual engaged in aggression or acting out more frequently when in the attention condition. Also, the magnitude of aggression was much higher. The individual would pinch and grab the staff beside him in order to receive attention. By the end of one of the attention trials, the individual did not stop grabbing and pinching. For the alone and control conditions, the individual only acted out in the form of throwing or knocking over cups. As staff at the agency hypothesized that attention would be the function, they ran more attention conditions to obtain extensive data.

![Functional Analysis Results](image-url)

*Figure 1: Results of the Functional Analysis conditions. There were 18 sessions across the three*
conditions. Three sessions of the control condition were conducted, four trials of the alone condition, and 11 trials of the attention condition.

During the alone conditions, the individual threw cups toward the instructor, and the agency perceived this action as trying to receive attention and he stopped when he did not get attention after a few attempts. The FA data could be undifferentiated due to this and running more attention sessions, but the agency was confident that attention was the function of behaviour. Based on the informal interviews, the QABF, and the FA results (Appendix G), attention was the most likely function of challenging behaviour exhibited by the client, and positive reinforcement techniques were used as an intervention for this individual to provide attention for appropriate behaviour.

The individual in this study had an abundance of data collected on him the past 5 years. In May of 2017, the individual’s data collection changed to the way it was at the time of this thesis. The table below outlines the total number of action out and aggression per month, starting May 2017.

<table>
<thead>
<tr>
<th>Month</th>
<th>Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>May</td>
<td>36</td>
</tr>
<tr>
<td>June</td>
<td>23</td>
</tr>
<tr>
<td>July</td>
<td>39</td>
</tr>
<tr>
<td>August</td>
<td>23</td>
</tr>
<tr>
<td>September</td>
<td>21</td>
</tr>
<tr>
<td>October</td>
<td>12</td>
</tr>
<tr>
<td>November</td>
<td>51</td>
</tr>
<tr>
<td>December</td>
<td>24</td>
</tr>
</tbody>
</table>

Table 1: Occurrences of acting out and aggression by month, between the months of May 2017 – December 2017

This information is important because it outlines how often the individual engaged in aggressive behaviours per month. The lowest month was October with 12 occurrences, and the highest month was during baseline with 51 occurrences. Compared to the baseline month, the intervention looks like it helped reduce aggression, but compared to other months, 24 occurrences of aggression is not indicative of positive change.

Intervention

Hand holding data collection began on October 4th, 2017 (Appendix H). In the baseline phase, the data were unstable and highly scattered, ranging from 0-28 hand holding occurrences per day. The median number of hand holding occurrences was 8, while the mean was 8.89. During intervention, the data were more stable and in a narrower range, between 2 and 14 hand holding occurrences a day. In comparison to the baseline, the mean and median were higher; the median was 11 and the mean was 9.6. The trend line for baseline is slightly increasing, while the trend line for intervention is increasing at a higher rate, despite being a smaller range. There were more outliers during baseline, which would be considered outliers because they are notably higher or lower than the average. There were no outliers during the intervention phase. The data
collected for hand holding did not indicate a positive change. Instead they indicated a higher, more steady increase in hand holding with a lower range of hand holding per day.

Figure 2: Baseline and intervention data for handholding.

Baseline data were collected for this intervention from November 1\textsuperscript{st} until November 27\textsuperscript{th} 2017. The intervention from November 28\textsuperscript{th} to December 30\textsuperscript{th}, 2017 (Appendix I). The data for both baseline and intervention were not stable, as the occurrences of aggression and acting out varied in both conditions. An extinction burst could be the reason that acting out/aggression spiked back up when intervention began, because the individual was searching for attention by acting out and was not getting reinforced because of it. The individual could have been searching for attention for the first two days before realizing that he was getting consistent attention throughout the day. The range for baseline was between 0-7, and the intervention range of 0-5 was quite similar. The median for baseline was 1, and the median for intervention was 0. The mean for acting out and aggression for baseline was 1.55, and for intervention it was 0.97. These data indicate that there was a positive change in behaviour between baseline and intervention. There were two outliers during the baseline phase, on November 4\textsuperscript{th} and 5\textsuperscript{th}, with 6 and 7 acting out/aggression occurrences respectively. Outliers during the intervention phase were on November 28\textsuperscript{th}, 29\textsuperscript{th}, and December 10\textsuperscript{th}, with 5, 4, and 5 occurrences of acting out and aggression, respectively. The trend line for the intervention showed a slow decline in acting out and aggressive behaviour, while the trend line for baseline indicated that the behaviour ceased; which it did at the end of baseline.
Figure 3: Baseline and Intervention data for acting out and aggression.
Chapter V – Discussion

The hypothesis in this study was that the use of noncontingent reinforcement (NCR) and differential reinforcement of alternative behaviours (DRA) procedures would reduce the aggressive and acting out behaviours in a 55-year-old man with Down syndrome. When intervention began, acting out and aggressive behaviours spiked for the first two days. Following this, the next 10 days there were zero incidents of acting out or aggression recorded. There were another 12 days, for a total of 22 days, or 66.66% of data collected in intervention of no occurrences for the rest of intervention period. In comparison, there were only 13 days, or 48.14% of no occurrences during the baseline phase.

The results of the intervention supported the hypothesis because the frequency of occurrences decreased once intervention started. Phillips and Mudford (2011) found that using NCR techniques reduced the rate of grabbing per hour. Like this thesis, the use of NCR reduced the frequency of aggression/acting out per day. Similarly, Piazza, Moes, and Fisher (1996), found that the use of DRA techniques decreased destructive behaviour.

Strengths

One strength of this study was the use and implementation of a functional analysis (FA). The functional analysis was helpful in identifying the proper function of behaviour and provided the data in order to create and implement an intervention.

Another strength of this study was staff training. This is considered a strength because it prepared the staff appropriately for when intervention commenced. If the staff were untrained, they would have had more difficulty with the intervention, and also would not know how to implement it.

Limitations

A limitation to this study was the potential for lack of consistency between staff in filing out the behaviour tracking sheets. This would be considered a lack of treatment integrity. Appendix B outlines the data collection sheets, and each box was to be filled in with either a behaviour, no occurrence, or absent. Each box on the data collection sheet should be filled in. The data collection sheets received were not filled out completely, and without a full sheet for both baseline and intervention, it is difficult to assess whether the data collected were reliable. For example, there could have been more occurrences in the intervention phase that were not recorded. Also, the individual did not attend day program over Christmas, as it was closed. This meant he was home more often, which could have resulted in more maladaptive behaviour collected during the intervention phase.

Another limitation to this study was that it was a single subject design, so it is unknown whether the intervention would work on other individuals with developmental disabilities. The AB design is not a design for single subjects. With the AB design it is impossible to rule out confounding variables, therefore cannot confidently conclude that the intervention implemented was responsible for any change observed and data collected.

Multilevel Challenges

During the implementation of this thesis, there were multiple challenges. An organization-level challenge was that the individual in the study had large staff teams, and sometimes even two different staff teams (residential and program). With many staff, it was hard to ensure consistency when dealing with the individual served and implementing the treatment program. Also, when the client engaged in aggressive behaviour towards staff, they may have been reluctant to work with the individual, which would be classified as another organizational
challenge. A societal level challenge was that the individual’s reputation may be tarnished in public if he was to engage in aggressive behaviours. At times he was not allowed out into the community, such as going for a swim, because he engaged in challenging behaviours. A program-level challenge would be that this individual’s family objected to medical interventions due to their religion. Therefore, body exams may be denied and the individuals health may not have been checked appropriately. These barriers may have contributed to the individual acting out more frequently.

Future Research

This study is important to the behavioural psychology field because it adds to the literature in domains of developmental disabilities, Down syndrome, NCR, and DRA. This study shows that these positive reinforcement techniques can be used to help reduce and suppress maladaptive behaviours. Future research may want to focus on one treatment method at a time. One month or week could be the DRA method and then the next month could be the NCR method. If this is done, then the results might show what treatment method is more effective. The intervention could possibly be ABAB design with different interventions for each new intervention phase. Intervention one could be DRA, intervention two could be NCR, and then the third intervention could be the two of them combined, while going back to baseline after every intervention phase.
References


Palix, J., Akselrod, M., Cungi, C., Giuliani, F., & Favrod, J. (2017). Changes in heart rate variability recorded in natural situation with t-shirt integrated sensors and level of observed


Appendix A
Consent Form

St. Lawrence College

Project title: Using Reinforcement to Reduce Hand-holding Restrictions with a 55-Year-Old Man with Downs Syndrome
Principal Investigator (Student): Carter Milne
Supervisor: Sarah Prevost-Walmsley
Institution: St. Lawrence College
Name of Institution: Community Living Kingston and District

Invitation
Your sibling is being invited to take part in a research study. I am a student and I am in my 4th year of the Behavioural Psychology program at St. Lawrence College. I am currently on placement at Community Living Kingston and District. As part of this placement, I am completing a research project called an applied thesis. I would like to ask for your sibling’s help to complete this project. The information in this form will help you understand my project. Please read the information carefully and ask all of the questions that you might have before you decide if you want your sibling to take part.

Why is this study being done?
This project uses reinforcement to help with aggressive behaviours and to reduce the hand holding restriction currently in place. Reinforcement involves positive attention and access to preferred activities and we believe this program will be helpful by reducing aggression. Your sibling’s wellbeing is important in this project.

What will your sibling need to do if he takes part?
If you choose to allow your sibling to take part in this study s/he will not have to change their daily routine too much. Staff will keep collecting data as usual and I will also help collect data once a week for 2 hours. When I am with him I will transition around the house, providing him with positive reinforcement and seeing if there is any acting out behaviours. After your sibling gets home from his day program he usually relaxes in the house, and he will continue to do this when I am with him.

What are the potential benefits to your sibling if they take part?
The ultimate goal is to see a reduction in aggressive behaviours of hitting objects and other people as well as the removal of the hand-holding restriction with your sibling. Your sibling may improve interactions with staff and other individuals which can increase community presence.

What are the potential benefits of this research study to others?
Potential benefits of this research study to others may include housemates and staff getting hit, as well as housemates and staff’s property being not being thrown. Another potential benefit would be for the staff not having to hold your sibling’s hands when walking around the house.
What are the potential disadvantages or risks to my sibling if they take part?
A potential risk for this analysis is that we are measuring your sibling’s aggression and he could become highly agitated during these sessions. If your sibling becomes agitated s/he may hit I, staff, or other clients. Another potential risk is that your sibling may find the sessions stressful and become anxious. Another risk is that the challenging behaviour may start to occur more frequently during the sessions, creating a potentially unsafe environment for anyone who is around.

What happens if something goes wrong?
To help reduce these risk factors the following criteria will be set in place. When your sibling has hurt themselves or someone else, and s/he exhibits anxiety behaviours for more than two minutes, he will be helped in calming down. To help relax your sibling if he remains agitated, his favourite toys will be given to him, and staff will inform him that he is okay. If he becomes agitated, you may be contacted and updated. Since data is already being collected every day with your sibling, my research project will help build from data being collected now, and trying to reduce aggressive behaviours.

Will the information from my sibling in this project be kept private?
We will make every attempt to keep any information that identifies your sibling confidential unless required by law. No names will be used, instead we will use your sibling’s initials. The consent forms and my project notes will be kept in a locked filing cabinet at Community Living Kingston and District or St. Lawrence College for 10 years. The computer files will be kept on a secure, password protected computer. All other study documents and results will be kept securely for 7 years at Community Living Kingston and District or St. Lawrence College and then they will be destroyed. Your sibling’s name will not be used in any reports, publications, or presentations resulting from this project.

Does my sibling have to take part?
Taking part is voluntary, it is up to you to decide whether or not to allow your sibling to take part. If you do not want your sibling to take part in this project, they will not be made to do so. If you do allow your sibling to take part, you will be asked to sign this consent form. If you do decide to allow your sibling to take part in this project, you are still free to stop at any time, without giving a reason, and without penalty to the services your sibling receives at this agency.

Contact for further information
This research project has received ethical clearance from the Research Ethics Committee for Behavioural Psychology (REC-P) under the authority of the St. Lawrence College Research Ethics Board (SLC-REB). The project was developed under the supervision of Christian Keresztes, my supervisor from St. Lawrence College. I appreciate your cooperation and if you have any additional questions, feel free to ask me, Carter Milne (Cmilne18@student.sl.on.ca). You can also contact my College Supervisor [Christian] at ckeres@kingston.net. If you have concerns about the way this research is being conducted or about your rights as a participant you may contact the SLC-REB Chair 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. The original will be retained at the agency.

By signing this form, I agree that:
- The study has been explained to me.
- All my questions were answered to my satisfaction.
- Possible harms, discomforts, and possible benefits to my sibling for participating in this study have been explained to me.
- I understand that my sibling has the right not to participate and the right to stop at any time.
- I understand that I can ask for more information about the study at any time.
- I have been told that my sibling’s personal information will be kept confidential.
- I understand that no information that can identify my sibling will be released or printed without my prior consent.
- I understand that I will receive a signed copy of this consent form.
- I understand that the data from this study will be presented at the St. Lawrence College Behavioural Psychology Poster Gala, and may be reported at other conferences or published in a scientific journal. No identifying information from my sibling will be included in these reports.

I hereby consent for my sibling, ____________________ to take part.

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<tr>
<th>Parent/Guardian Name</th>
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<th>Student Name</th>
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Appendix B
Aggression and Acting Out Data Collection Sheet
Behaviour Tracking

Month: ________________ Year: _____________

Operational Definitions
Aggression Attempts (AF): Any occurrence when Client attempts to hits, scratches, grabs or pinches another individual.
Aggression (A): Any occurrence when Client hits, scratches, grabs, kicks or pinches another individual.
Property Damage Attempts (PF): Any occurrence when Client attempts to throws or knock over an object. This also includes any occurrence when Client attempts to hit a window or wall.
Property Damage (P): Any occurrence when Client throws or knocks over an object. This also includes any occurrence when Client hits a window or wall.
Self-Injury (S): Any occurrence when Client is hitting his head forcefully with his hand, objects, or walls/windows. This also includes grabbing staff’s hands and using their hands to hit himself.
Eating and smearing Feces (E): Any occurrence of feces entering his mouth or touching his own feces and touching other body parts, furniture, walls/windows, or other objects.
Urination (U): Any time he is outside of the bathroom or his bed and urinates.

Instructions
For each time block use the designated letter to indicate how many times the target behaviour occurred.
If no target behaviours occurred mark a 0 and X if he was absent.
For example if Aggression occurred twice in a time block you would record “AA”, or if Self-injury, Property Damage and Aggression all occurred once in a time block you would record “SPA”.
If he stops engaging in a behaviour for more than 1 minute and starts again it is recorded as a separate occurrence.

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Appendix C
Handholding Data Collection
Behaviour Tracking
Residential

Month/Year: __________________

**Operational Definition**

**Hand Holding (H):** hand holding is defined as whenever you hold Client’s hands to prevent him from any acting out/aggressive behaviours. Hand holding is NOT defined as holding Client’s hand when he reaches for your hand or when he needs to hold your hand for balance. An example would be if you are walking in the house and he prompts to hold your hand, you would not mark that as hand holding. But if you walk near a housemate and need to grab both hands or reposition him as to avoid acting out, you would count this as hand holding.

**Instructions**

For each time block mark using the designated letter how many times the target behaviour occurred. If no target behaviours occurred mark a 0 and X if he was absent. For example if the hand holding restriction was done twice in one time block you would record it as “H, H”. If you are able to release Client’s hands because you feel like acting out will not occur but then shortly after you have to hold Client’s hands again these will be recorded as separate occurrences.

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Appendix D
Questions About Behavioural Function

Client name:  
CN:  
DOB:  
Date:  interviewing:  
Respondent:  

QUESTIONS ABOUT BEHAVIORAL FUNCTION (QABF)  

Rate how often the student demonstrates the behaviors in situations where they might occur. Be sure to rate how often each behavior occurs, not what you think a good answer would be.

<table>
<thead>
<tr>
<th>Score</th>
<th>Number</th>
<th>Behavior</th>
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<tbody>
<tr>
<td>1.</td>
<td></td>
<td>Engages in the behavior to get attention.</td>
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<tr>
<td>2.</td>
<td></td>
<td>Engages in the behavior to escape work or learning situations.</td>
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<tr>
<td>3.</td>
<td></td>
<td>Engages in the behavior as a form of “self-stimulation”.</td>
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<tr>
<td>4.</td>
<td></td>
<td>Engages in the behavior because he/she is in pain.</td>
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<td>5.</td>
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<td>Engages in the behavior to get access to items such as preferred toys, food, or beverages.</td>
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<td>6.</td>
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<td>Engages in the behavior because he/she likes to be reprimanded.</td>
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<td>7.</td>
<td></td>
<td>Engages in the behavior when asked to do something (get dressed, brush teeth, work, etc.</td>
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<tr>
<td>8.</td>
<td></td>
<td>Engages in the behavior even if he/she thinks no one is in the room.</td>
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<tr>
<td>9.</td>
<td></td>
<td>Engages in the behavior more frequently when he/she is ill.</td>
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<td>10.</td>
<td></td>
<td>Engages in the behavior when you take something away from him/her.</td>
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<td>11.</td>
<td></td>
<td>Engages in the behavior to draw attention to himself/herself.</td>
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<td>12.</td>
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<td>Engages in the behavior when he/she does not want to do something.</td>
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<td>13.</td>
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<td>Engages in the behavior because there is nothing else to do.</td>
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<td>14.</td>
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<td>Engages in the behavior when there is something bothering him/her physically.</td>
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<td>15.</td>
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<td>Engages in the behavior when you have something that he/she wants.</td>
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<td>16.</td>
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<td>Engages in the behavior to try to get a reaction from you.</td>
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<td>17.</td>
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<td>Engages in the behavior to try to get people to leave him/her alone.</td>
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<td>18.</td>
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<td>Engages in the behavior in a highly repetitive manner, ignoring his/her surroundings.</td>
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<td>19.</td>
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<td>Engages in the behavior because he/she is physically uncomfortable.</td>
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<td>20.</td>
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<td>Engages in the behavior when a peer has something that he/she wants.</td>
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2. Does he/she seem to be saying, “come see me” or “look at me” when engaging in the behavior?

2. Does he/she seem to be saying, “leave me alone” or “stop asking me to do this” when engaging in the behavior?

2. Does he/she seem to enjoy the behavior, even if no one is around?

2. Does the behavior seem to indicate to you that he/she is not feeling well?

2. Does he/she seem to be saying, “give me that (toy, food, item)” when engaging in the behavior?

Attention | Escape | Non-social | Physical | Tangible |
--- | --- | --- | --- | --- |
### QABF Scoring

**Attention**
1. Engages in the behavior to get attention.
2. Engages in the behavior to escape work or learning situations.
3. Engages in the behavior as a form of “self-stimulation”.
4. Engages in the behavior because he/she is in pain.
5. Engages in the behavior to get access to items such as preferred toys, food or beverages.
6. Engages in the behavior because he/she likes to be reprimanded.
7. Engages in the behavior when asked to do something (brush teeth, work, etc.).
8. Engages in the behavior even if he/she thinks no one is in the room.
9. Engages in the behavior more frequently when he/she is ill.
10. Engages in the behavior when you take something away from him/her.
11. Engages in the behavior to draw attention to him/herself.
12. Engages in the behavior when he/she does not want to do something.
13. Engages in the behavior to try to get a reaction from you.
14. Engages in the behavior when there is something bothering her/him physically.
15. Engages in the behavior when you have something he/she wants.
16. Engages in the behavior to try to get a reaction from you.
17. Engages in the behavior to try to get people to leave him/her alone.
18. Engages in the behavior in a highly repetitive manner, ignoring this/her surroundings.
19. Engages in the behavior because she/he is physically uncomfortable.
20. Engages in the behavior when a peer has something he/she wants.
21. Does he/she seem to be saying “come see me” or “look at me” when engaging in the behavior?
22. Does he/she seem to be saying “leave me alone” or “stop asking me to do this” when engaging in the behavior?
23. Does he/she seem to enjoy the behavior, even if no one is around?

**Escape**
2. Engages in the behavior to escape work or learning situations.
7. Engages in the behavior when asked to do something (brush teeth, work, etc.).
12. Engages in the behavior when he/she does not want to do something.
17. Engages in the behavior to try to get people to leave him/her alone.
22. Does he/she seem to be saying “leave me alone” or “stop asking me to do this” when engaging in the behavior?

**Non-social**
3. Engages in the behavior as a form of “self-stimulation”.
8. Engages in the behavior even if he/she thinks no one is in the room.
13. Engages in the behavior because there is nothing else to do.
18. Engages in the behavior in a highly repetitive manner, ignoring this/her surroundings.
23. Does he/she seem to enjoy the behavior, even if no one is around?

**Physical**
4. Engages in the behavior because he/she is in pain.
9. Engages in the behavior more frequently when he/she is ill.
14. Engages in the behavior when there is something bothering her/him physically.
19. Engages in the behavior because she/he is physically uncomfortable.
24. Does the behavior seem to indicate to you that he/she is not feeling well?

**Tangible**
5. Engages in the behavior to get access to items such as preferred toys, food or beverages.
10. Engages in the behavior when you take something away from him/her.
15. Engages in the behavior when you have something he/she wants.
20. Engages in the behavior when a peer has something he/she wants.

|--------------|----------------|----------------|------------|---------------|

Total | Total | Total | Total | Total

X = Doesn’t apply 0 = Never 1 = Rarely 2 – Some 3 = Often
25. Does he/she seem to be saying “give me that (toy, item, food)” when engaging in the behavior?

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Appendix E
Functional Analysis Conditions

Conditions
There will be three separate conditions to address three different functions. Each condition will be run five times or for five sessions and presented in a random order. Each of these sessions will last 10 minutes unless the predetermined termination criteria is met. The first condition is the control condition during which time we would expect no problem behaviour. The second condition is the attention which will assess for attention as the function of the behaviour, and finally, last condition is the alone condition which will assess for sensory/automatic as the function of the behaviour. The escape and tangible conditions were not selected for this assessment as there is little evidence in the indirect assessments that those are possible functions (does not occur when a demand is placed on him/ does not escape a demand, and he is not ever given an item following the behaviour).

The following is a description of how each condition will be run:

Control: In the control condition Client will be given free access to a variety of preferred items and given positive and non-contingent attention. During this time no demands will be placed on him.

Attention: In this condition Client will be given a small amount of positive attention and then mediator will stop providing attention (create an EO) and tell Client that she is busy doing work. Once attention is removed, if Client engages in the target behaviour he will be given attention in the form of a statement regarding the behaviour “Client that’s not nice” or “Client don’t do that”. Statements will be brief and the mediator will not provide additional attention until Client engages in the target behaviour again.

Alone: In this condition there will be multiple items set up around the room to allow Client to engage in the behaviour multiple times without any mediation. Client will be left alone in the room without any other items or activities to engage, as if there are sensory items in the room this may not evoke the target behaviour.
Appendix F
Intervention Procedures

NCR and DRA intervention information

Non contingent reinforcement procedure:
Staff are to give Client positive attention at least once every 15 minutes. Staff are to wear a motivaider set to 15 minute intervals.

Examples:
- High fives and fist bumps
- Other positive physical interactions (got your nose, rub his hair playfully)
- Talking with Client, asking him about activities he did during the day (swimming, store, bowling)
- Sitting near Client
- Playing with his toys
- Playing with big ball

Differential reinforcement of alternative behaviour procedure:
Once every 15 minutes verbally praise Client for doing an appropriate behaviour that isn’t his aggression or property damage behaviour. Staff are to wear a motivaider set to 15 minute intervals. Examples of alternative appropriate behaviour would be: music, toys, conversation, eating at the table appropriately.

Examples of statements:
- “Good job sitting nicely Client”
- “Good job playing with your toys Client”
- “Good job eating Client”

In the DRA it is important not to give Client a big reaction to his aggressive/property damage behaviours, but to focus on removing him from the situation (or proceed as you normally would when he engages in challenging behaviour). Speak in a neutral tone. It is also important to praise Client every time he transitions within the house where he doesn’t engage in challenging behaviour. Say “good job walking here client” or “thank you for not hitting anything Client”. Another thing you can say to Client before transitioning is “be” and will say “good”. This can act as a prompt and also gives him attention.
Appendix G
Functional Analysis Results

Figure 1: Results of the Functional Analysis conditions. There were 18 trials between the three conditions. Control had 3 trials, alone had 4 trials, and attention had 11 trials.
Appendix H
Hand Holding Data

Figure 2: Baseline and intervention data of hand holding.
Appendix I
Baseline and Intervention Data

Figure 3: Baseline and Intervention data.