Increasing the Ability to Wait Calmly in a 19-year-old Man

Using Visual Cues and Delayed Reinforcement

by

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ABSTRACT

Some individuals have difficulty waiting for activities or tangibles that may interfere with their ability to interact appropriately with others. Without waiting, one would not be able to function according to social norms. For example, waiting in a public washroom line or waiting for your meal at a restaurant. Thus, it seems useful to investigate which interventions could possibly help an individual master the ability to wait. The present study was designed to explore whether using delayed reinforcement and visual cues will increase an individual’s ability to wait calmly when asked. It was hypothesized that by using delayed reinforcement and visual cues, a participant with a dual diagnosis and a hearing impairment will increase his ability to wait calmly when asked. A behavioural program was implemented where the participant was asked to “please wait” using American Sign Language and was reinforced when waiting calmly. The participant’s ability to wait calmly increased from baseline (31% of the occurrences) to intervention, (63% of the occurrences). In conclusion, the use of delayed reinforcement and visual cues was effective in increasing the participant’s ability to wait calmly when asked. Further research still needs to be completed on the use of wait programs, as there is currently very little research on the effectiveness of the use of wait programs.
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Chapter I: Introduction

Purpose

Imagine working as a waiter/waitress at a restaurant and you come across a customer that is impatient to receive their meal. They do not want to wait any longer and become belligerent, throwing their arms in the air, making loud noises, and disturbing other people’s meals. How would you handle it? Would you ask the person to leave? Waiting is a skill that everyone requires to be able to interact with other individuals. Without waiting, one would not be able to function according to social norms.

Waiting is also required when using delayed reinforcement in a behavioural program. Delayed reinforcement typically involves the individual completing some sort of task, then waiting a predetermined amount of time before receiving any type reinforcement. In addition, the delay of the reinforcement is gradually increased from an immediate reinforcer to a delayed reinforcer. For example, a child might receive a sticker after each completion of a math problem but then the delay may be gradually increased until a sticker is only provided after the completion of 10 math problems. When the delayed reinforcer is delivered, there is typically some sort of signal that informs the subject that reinforcement will be coming later. When creating behavioural programs for individuals with hearing impairments, it is important to consider what types of signals or visual cues to use. Some individuals with hearing impairments use American Sign Language as their main source of communication, so using visual cues may be the most beneficial in a behavioural program.

The participant in this case study lives in a transitional home, where skills are taught so that the individuals residing in the home, so they can eventually live in the community without
constant support. Being able to wait is a skill that the participant currently struggles with and he needs to develop this skill so that he can make the transition to the community. Increasing the participant’s ability to wait calmly may improve his understanding of social norms around waiting and then he may be more successful in the community. It is hypothesized that using visual cues and delayed reinforcement will help increase the ability to wait calmly when asked, in a 19-year-old man with dual diagnosis and a hearing impairment.

Throughout the body of this paper, a review of the relevant literature is discussed, covering the diagnoses of the participant, and empirical evidence for the treatment methods. In addition, all treatment methods used with the participant are discussed including the use of delayed reinforcement and visual cues. The results from baseline assessments, interviews, and direct observations, and the results from the treatment are reported, including tables and graphs. The strengths and limitations to the treatment are discussed, along with any implementation issues. Finally, implications for the Behavioural Psychology field and recommendations for future research are discussed.
Chapter II: Literature Review

The following research was chosen to review the methods and procedures used within this study. The literature is used to make connections between the importance of adapting programs for individuals with hearing impairments, dual diagnosis, and Attention Deficit Hyperactivity Disorder (ADHD). The current participant in this study has an intellectual disability and has been diagnosed with ADHD; in addition, he has a hearing impairment. The literature also reviews the methods and procedures for delayed reinforcement, and visual cues to strengthen appropriate behaviours.

Population

Dual diagnosis. Dual diagnosis refers to the co-existence of an intellectual disability and a psychiatric disorder or mental health problem (Sturmey, Lindsay, & Didden, 2007). This could be a combination of a wide range of diagnoses. For example, an individual that is diagnosed with schizophrenia and a developmental disability disorder would be considered as dually diagnosed. There are multiple challenges when assessing, diagnosing and treating individuals with dual diagnosis. According to Sturmey, Lindsay, and Didden (2007) one issue is a lack of reliable and valid instruments to identify and diagnose psychiatric disorders among individuals with intellectual disabilities. The second issue the authors bring to attention is that general or non-specialized referral agencies lack knowledge of dual diagnosis making treatment for these individuals limited. The final issue stated is the general and psychiatric health services lack of knowledge and experience when dealing with an individual with dual diagnosis. Therefore, all of these factors together make it clear that diagnosis, assessment, and treatment of individuals with dual diagnosis are inadequate. The literature described the difficulty for professionals to provide
accurate diagnosis and intervention with an individual with dual diagnosis, but if an individual also has a hearing impairment, these challenges can be even greater.

**Hearing impaired.** A culture can be defined as having its own unique language, values, behavioural norms, arts, educational institutions, political and social structures, and organizations (Canadian Association of the Deaf, 2008). According to the Canadian Association of the Deaf (CAD), the Deaf culture includes the use of sign language, their own schools, theatres, books, magazines, recreational and organization groups, and peripherals (flashing alarms, closed captioning for television). Having a hearing impairment can be defined as little or no functional hearing and depends upon visual rather than auditory communication. “Visual means of communication” include sign language, lip-reading, speech reading, and reading and writing. “Auditory means of communication” include voice, hearing, and hearing aids and devices (Canadian Association of the Deaf, 2008).

When examining statistics of people with hearing impairments within Canada, one must take extreme caution. The Canada Census and PALS (Participation and Activities Limitations Survey, successor to HALS) are not designed with people with hearing impairments in mind. The Census consists of written questions, not available in video or sign language and may seem intimidating to an individual whose first language is mainly visual and gestural (Canadian Association of the Deaf, 2008). Results from the Census show that approximately one in every 25 Canadians has “impaired hearing”, which is approximately one million people. The Census does not specify statistics for people who have no hearing at all.

When developing a program for the hearing impaired, there are several important considerations. First, the individual may need a translator to communicate the program
procedures and objectives into sign language so that there is thorough understanding. Second, the individual’s level of literacy needs to be taken into consideration. Consent must be given for a program to be put into place, and the individual must be able to understand what they are reading and make an informed decision about whether or not to participate in any treatments. If an individual is not able to read and understand the consent form, than someone who has a good rapport with the individual may need to communicate in sign language the information contained on the consent form. When developing a behavioural program for an individual with a hearing impairment, it is important to consider the individual’s main form of communication and their level of literacy to help increase the effectiveness of the program.

**Attention Deficit Hyperactivity Disorder.** Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common neurobehavioural disorders that develops throughout childhood and can persist through adolescents and adulthood (Re, Caeran, & Cornoldi, 2008). Individuals with ADHD typically exhibit inappropriate levels of inattention and/or hyperactivity but can also have a variety of behavioural difficulties, and poor academic performance. Re, Caeran, and Cornoldi conducted a study assessing expressive writing skills among 35 children with ADHD and 35 children without ADHD. The children were given the task of writing a letter with either standard instructions or a guide scheme. The groups given the task with the guide scheme were given a brief training session on the use of the guide scheme. The data showed that both the control group and the ADHD group benefited from the guide scheme. Therefore, children with ADHD may have poor expressive writing skills, but they can be improved using a guide scheme.
This study shows the effectiveness of teaching skills to children with ADHD. It also shows the importance of using different ways to teach skills. Standard instructions may not be suitable for children with ADHD, so adapting instructions to fit the individual’s needs may benefit when developing a behaviour change program.

Johnson et al. (2008) evaluated the reaction times, number of incorrect responses made and the number of omission errors made in a group of 73 children with ADHD and 73 children in a control group using the Attention Network Task (ANT). The ANT assesses three different networks of attention: alerting, orienting and conflict. The authors define the alerting network as the network that acquires and maintains an alert state, and the orienting network that selects information from sensory input to be further processed. They described the conflict network as the network that resolves any conflict that arises between any competing stimuli. The results of this study demonstrated that children with ADHD show deficits in the alerting and conflict networks but appear to have normal functioning in the orienting network. This suggests that children with ADHD have difficulty with keeping their attention directed on a task and show challenges with any competing stimuli in the environment. When required to wait, children with ADHD would have difficulty focusing on the task of waiting and if any competing stimuli are present in the environment, they may not be able to focus on waiting and may engage in other behaviours because their attention may be shifted to other stimuli.

**Teaching Methods**

**Wait Program.** A wait program is a program that teaches individuals the skill of waiting when asked. A typical part of life is waiting in lines, waiting to receive food, waiting for other individuals to complete tasks, etc. Jessup-Joyce (2008) effectively used a “wait” program with an
adult woman who had learnt over time that refusing to wait allowed her to escape from non-preferred situations and locations. The “wait” program included presenting the participant with a wait card and asking her to wait. Once the participant waited the predetermined time, she received a reinforcer. Once she was able to wait the predetermined time for “x” amount of times, the wait time was then increased.

**Visual cues.** Quill (1995) discusses the theoretical rationale for using visually cued instruction, which is based on the review of empirical studies. According to Quill, using written and pictographic cues can support children’s understanding of verbal and social cues. This in turn can make it easier for them to learn, communicate, interact, and develop self-control. Quill (1997) states that visual cues can support a child’s understanding of oral language instructions and the child may be better able to understand the message when it is presented in pictographic or written language. This study was conducted with children with autism who are better able to process visuo-spatial information than auditory-temporal information (Hermelin & O’Connor, 1970). This means that children with autism process visuo-spatial information better than auditory-temporal. This is also true for individuals with hearing impairments. Visuo-spatial processing is when information is presented when looking or seeing the information and auditory-temporal is processing information when it is heard by the individual.

Houghton (1993) demonstrated the effectiveness of using visual and verbal cues to control littering in high schools. The experimenter calculated the average number of students and litter in each area of two separate schools as baseline. The intervention phase was broken up into three phases including using verbal cues only, than verbal cues paired with visual cues and the final phase was visual cues only. In addition, follow-up was completed six weeks after the
intervention was complete. Results indicate that using verbal and visual cues decreased the amount of litter in each of the high schools. The author reported that pairing the verbal and visual cues had more of an effect on litter than verbal or visual on their own, but one has to keep in mind that the phase where they were paired fell between the verbal cue only and visual cue only phase. This may have caused a sequential effect.

Alvarado, Puente, and Herrera (2008) conducted a study assessing visual codes and working memory in the reading abilities of children with hearing impairments. The study consisted of 28 children between the ages of 7 to 16 years of age with a hearing impairment and 15 hearing children. The authors identified potential factors that contribute to poor reading performance in general and they include; lack of phonological understanding, reduced working memory capacity, and coding difficulties. The authors emphasized the importance of the last two factors for children with hearing impairments. The method included teaching the children how to fingerspell, in hope that sliding finger along with the letters and words would improve the children’s ability to store information into their working memory. The results indicated that there was an increase in reading abilities among the children with hearing impairments. This study suggests that when teaching or helping improve skills among children with hearing impairments, it is beneficial to use visual coding.

*Delayed Reinforcement*

Reinforcement is defined as the process in which behaviour is strengthened by the immediate consequence that reliably follows its occurrence. When behaviour is strengthened, it is more likely to occur again in the future (Miltenberger, 2004). The concept of reinforcement dates back to 1911 when Thorndike placed a hungry cat in a cage with food in sight but out of
reach. The cage itself was rigged that if the cat pushed the lever the door would open. As the cat attempted to escape the cage, it accidentally pushed the lever and was released. Each time Thorndike put the hungry cat in the cage it took less time for the cat to open the door. Eventually, as soon as the cat was put into the cage it would push the lever and be released. Escaping the cage and eating the food was the natural consequence for pushing the lever, which in turn strengthened the behaviour of pushing the lever. Results of these experiments led Thorndike to call this term, the law of effect (Miltenberger, 2004). When reinforcing an individual, it can be either positive or negative. Positive reinforcement includes presenting a stimulus after the behaviour to strengthen the desired behaviour. Negative reinforcement includes the removal of an aversive stimulus to strengthen the desired behaviour (Miltenberger, 2004).

Delayed reinforcement can be defined as not giving reinforcement immediately after the behaviours but rather waiting a predetermined amount of time to give the reinforcer (Renner, 1964). When teaching a new behaviour, it is important to reinforce every occurrence of the behaviour but if the behaviour is already in the individual’s repertoire, intermittent reinforcement is more useful because it maintains the behaviour over time (Miltenberger, 2004).

Dixon, Rehfeldt, and Randich (2003) conducted a study with three men with moderate to profound developmental disability. They increased preference for self-control in the participants by gradually increasing delay to a reinforcer, also incorporating an activity during the delay. A preference assessment was completed to determine what items were most reinforcing for each individual. Prior to baseline, waiting assessments were completed to determine the average length of time that each individual was capable of waiting. Baseline consisted of one and two
choice trials where the individual had either one or two index cards placed in front of them. Each index card represented whether they would receive the reinforcer immediately or had to wait the set amount of time before receiving the reinforcer. Colours of the cards were randomized so that colour preference was not a factor. Alternating treatment conditions were used during implementation of the program. The first treatment condition only required the individual to choose between two index cards that were paired with either a small immediate reinforcer or a large delayed reinforcer. The second condition included three index cards. One card representing a small immediate reinforcer, the second was paired with a large delayed reinforcer and the third paired with a large delayed reinforcer, which required the individual to engage in an activity during the delay. Results indicate that progressively increasing the length of the delay is an effective procedure for shifting a person’s choice from a small immediate reinforcer to a larger delayed reinforcer.

Although this study showed positive results, there were a few limitations; the baseline consisted only of two sessions and was not staggered across participants, and the effects of the activity during the delay were not consistent across participants.

Dixon and Cummings (2001) conducted a study with the purpose of increasing self-control and decreasing problem behaviour in children with autism using exposure to concurrent fixed-duration/progressive-duration schedules of reinforcement. The procedures were similar to Dixon, Rehfeldt, and Randich (2003). Preference assessments and waiting assessments were conducted to determine what items were reinforcing and the average length of delay that could be tolerated. The only difference in procedures between the two studies was that instead of index cards being presented, the actual item or a picture of the item was presented to the children. The
results also showed similarities to the previous study. Self-control was increased using gradual increases in the delay to a larger reinforcer and the choice to engage in an activity during the delay.

These two studies suggest that conducting wait assessments is a constructive way to determine the length of time that each individual is capable of waiting to receive reinforcement. In addition, that giving individuals the choice between a small immediate reinforcer and a larger delayed reinforcer will increase the likeliness that they will choose the larger delayed reinforcer after a period.

Fowler and Baer (1981) state that using delayed reinforcement may facilitate generalization by preventing discrimination of the settings that the reinforcement takes place. Fowler and Baer conducted a study with seven preschool children who did not have any known deficits using a multiple baseline design. They alternated sessions of early feedback and reinforcement with late feedback and reinforcement. The results indicate that by alternating early and late reinforcement, the children were able to generalize their behaviour to each of the sessions. When using an intermittent schedule the children were unaware of exactly when they would receive the reinforcement, possibly causing them to elicit the target behaviours majority of the time to obtain the reinforcement. In addition, individuality is an important aspect when setting goals and objectives. If the delay of reinforcement is too long, there is the risk of “extinguishing” the response (Ferster, 1953). If the behavioural response is extinguished due to too long of a delay, than the schedule of reinforcement may need to be returned to a continuous schedule to help the individual relearn the skill. Once the individual is responding to the
continuous schedule than the delay can be increase, but this time ensuring it is not being increased so dramatically.

**Mediator Training.**

When creating a behavioural program, the researcher may train mediators to implement the program. The mediator’s role is to implement procedures and collect data on a day-to-day basis while the researcher randomly conducts treatment integrity evaluations. This may include observations of implementers and collecting data to ensure that data is reliable. The researcher randomly collecting data, along with the staff collecting data all the time will allow the researcher to ensure procedures are being implemented correctly and that the data collection sheet is being filled in correctly and for every occurrence of the behaviour.

**Training methods.** When training staff, it may be useful to use a variety of different techniques to teach the procedures of the program. Three different techniques have been shown effective in teaching mediators. First, Clark, Nguyen, Bray, and Levine (2008) introduced team-based learning method in place of the typical lecture-based learning method to an undergraduate nursing program. Team-based learning is when a large group is broken down into smaller groups that teach each other the material that needs to be taught. One class within the nursing program was left as the typical lecture-based and another class was instructed to incorporate the team-based learning method. The professors incorporating the team-based learning were trained in how to teach in that manner. They compared classroom engagement and assessed the student’s pre- and post- evaluations of team-based learning strategies and attitudes of the value of teams. They concluded that team-based learning is an effective strategy for large groups of students. Training staff within a transitional home should be conducted using the team-based learning
approach. Being that the staff are already a team, training should be conducted in a group so that there can be mutual teaching and learning that incorporates feedback from multiple sources and plenty of opportunity for questions and discussion within the group.

The second technique that may be effective in mediator training is written instructions. Smith and Goodman (1984) evaluated the differences between written instructions with and without rationales attached to each step in building a circuit. The first group of participants were given written linear instructions, which are systematic instructions without rationales. The second group was given written instructions with rationales that emphasized the structure of the circuit. Finally, the third group was given written instructions with rationales emphasizing the function of the circuit. Results indicated that the groups given written instructions with rationales showed better performance on completing the second circuit than the group given written instructions with no rationale. Therefore, providing written instructions with a rationale for each step is more beneficial in mediator training.

The final technique in mediator training is behavioural rehearsal or role-plays. They include acting out possible situations the mediator may encounter when implementing the behavioural program. It allows for feedback on the interaction and possible suggestions for improvement. Sibisi and Yule (1982) offered an excellent view on using role-plays when teaching mothers different skills to deal with inappropriate behaviours from their children. Before and after each session, the mothers participated in a role-playing test in order to determine whether their skills had changed. Results indicate that there was a statistical significance in the mothers’ improvement suggesting that they had learned something from the
sessions. This study suggests that using role-plays is an effective technique in training parents or mediators about implementing a behavioural program.

Summary

In summary, individuals with a dual diagnosis, ADHD, and a hearing impairment may have difficulty when it comes to waiting. This is especially likely because individuals with ADHD appear to have deficits in two of the three attention networks, which may does not allow them to keep their attention focused and to ignore any competing stimuli in the environment.

The research literature suggests that delayed reinforcement and visual cues have been effective in decreasing inappropriate behaviours and increasing appropriate behaviours. Wait programs are a beneficial tool to increase the amount of time an individual is capable of waiting, which may be an important skill when transitioning into the community.

Although the studies reviewed did not focus on individuals with hearing impairments, the similarities between the hearing impaired and individuals with autism are great. Both people with autism and the hearing impaired use visuo-spatial processes to interpret and encode information.

When developing behavioural programs, it is important to consider how to train the mediators. It is suggested that three different techniques can be effectively used: team-based learning, written instructions, and role-plays.

It is expected that using delayed reinforcement with visual cues will be effective in increasing the ability to wait calmly when asked in an individual with a hearing impairment and a dual diagnosis.

Literature Review Word Count: 3,400
Chapter III: Method

Participants

Andrew¹ is a 19-years-old male with a hearing impairment, combined with a dual diagnosis of a Mild Developmental Disability and Attention Deficit Hyperactivity Disorder (ADHD), participated in the study. The participant is capable of reading lips, reading and writing, and using sign language. He attends a local high school for the Deaf and resided in a transitional home for men with dual diagnosis. The home consists of six men residing there with four day-time staff and two overnight staff. The referral was made by the case manager to increase the participants waiting ability so that he may be more successful within the community.

Informed Consent

Prior to implementing the program, informed consent was obtained from the participant using the St. Lawrence College consent form and the consent form developed by the agency (Appendices A and B). The participant has the capacity to consent to the program and the case manager agrees that the participant is fully capable of signing the consent form. The form was reviewed with the participant and the case manager, who is fluent in sign language, allowing opportunity for questions to be asked in either written form or sign language. It was made clear to the participant that he can withdraw from this study at anytime without negative consequences to his treatment and/or living situation at the transitional home. This study was reviewed and approved by the St. Lawrence College Research and Ethics Board.

Design

The study uses an AB design with “A” being baseline, and “B” the intervention phase.

¹ For reasons of confidentiality all client names used in this report are fictional.
The dependent variable measured is the ability to wait calmly when asked. Waiting calmly when asked is said to occur when the participant is asked to wait and displays the following behaviours: taking or consuming the item only when he is told or signalled to take or consume the item, being approximately 3 feet from the person who has asked him to wait, and engaging in appropriate behaviours; for example, when asked to wait he moves away from the area or possibly distracting himself while he waits. The independent variables include using delayed reinforcement and visual cues to elicit the desired behaviour.

Once data was collected, visual analysis was used to determine the clinical significance of the program. Trend lines were drawn and percentage of change between baseline and intervention phase was identified.

**Setting and Apparatus**

The study took place in the home of the participant. Staffing within the home consists of four teams of two who rotate between days and nights, two staff who work strictly weekdays rotating between days and evenings, and two contract staff who rotate between all shifts. If at any time one of these staff is unable to work, a call-back staff is then brought in who is not entirely familiar with the clients and their protocols.

Materials used in this study included data recording sheets.

**Measures**

*Review of case files:* Andrew’s case files contained minimal information. All information collected is reported in the results section.

*FAI – Functional Analysis Interview Form:* An FAI (O’Neill, Horner, Albin, Storey, & Sprague, 1990) is an interview that consists of nine sections: behaviours, potential ecological events, events and situations that predict occurrences of the behaviour, identifying the functions
of undesirable behaviours, primary methods of communication, functional alternative
behaviours, and the history of the behaviours, including any previous programs used. The FAI
was used to gather information on the functions of the participant’s behaviours prior to
implementation of intervention procedures.

*Sequential (ABC) analysis of baseline data:* The Sequence (ABC) analysis of baseline
data allowed for the identification of the direct antecedents and consequences of the participant’s
ability or inability to wait calmly when asked.

*Direct observations:* Direct observations were conducted from 7:45 a.m. to 8:15 a.m. and
5:30 p.m. to 8:00 p.m. This consisted of the researcher and/or staff interacting with the participant
and politely asking him to wait, when necessary. Direct observations of the frequency of the
behaviour were conducted for three months prior to the implementation of treatment. Due to the
researcher’s inconsistent schedule, data could not be collected consecutively. In a two-week
period, the researcher was available to collect data for twelve hours on seven of the days.

*Goals and Objectives*

The objectives were chosen based on the results from the baseline assessment presented
in the results section.

*Goal.* Before and after school, Andrew will be able to wait calmly when asked 50% of
the occurrences.

*Objectives.* Before and after school, Andrew will display waiting calmly when asked:

1. 40% of five occurrences for 3 consecutive times
2. 60% of five occurrences for 3 consecutive times
3. 80% of five occurrences for 3 consecutive times
The ability to wait calmly when asked was measured by frequency of occurrences. The first objective for the participant to wait calmly when asked for 40% of five consecutive occurrences (2 out of five occurrences) for three consecutive times. After the participant was able to wait for 40% of the five occurrences for three consecutive times, than the percentage that he was required to wait was increased by 20% (3 out of five consecutive occurrences). As he met each objective, the criteria increased until he had reached an acceptable level of waiting calmly when asked. Once each objective was met, a new data recording sheet was posted and all staff was made aware that the participant had met the current objective and that it was being increased to the next level.

Procedure

Baseline data collection. Baseline consisted of observation sessions twice daily, from 7:45a.m. to 8:15a.m. and from 4:30p.m. to 8p.m conducted by the researcher. The first session was the time between the participant finishing his morning routines and catching the school bus. The second session was when he returned from school until the end of the researcher’s shift. During the observations, the observer collected data on the frequency of occurrences that the participant was capable and incapable of waiting calmly to receive a desired item or activity. This allowed objectives to be set according to how often the participant was capable of waiting.

Mediators training. Prior to the implementation phase, the researcher conducted training session on the program procedures with all full-time staff. The training sessions were provided to the staff in a group format and some individual training sessions were offered to the staff that was unable to attend the group session. Two sessions, approximately 30 minutes in length, were conducted and included reviewing the procedures of the program and doing role-plays on different situations the staff members may encounter. In addition, mediator instructions were left
in the participant’s protocol binder so that callback staff had access to the program procedures (Appendix C).

**Program implementation and visual cues.** The intervention phase included asking the participant to wait, while using sign language. When the participant was asking for an activity and/or item and the researcher/staff members could not provide the required item or activity, immediately the participant was asked politely to wait using sign language. The researcher/staff members then ignored the participant until able to give him their attention for what he had requested. The sign to wait included holding hands palms face up, with curved open hands, up to the left with the right hand behind the left. Then wiggle all fingers (Butterworth & Flodin, 1995).

**Delayed Reinforcement.** A proper reinforcement assessment was not conducted because the participant would have had to pay for any tangible reinforcers out of his own finances. This was agency policy, which all individuals residing in the home had to pay for any tangible items, whether items of necessity or pleasure. The case manager decided that reinforcers that are more natural would be sufficient for each occurrence of the behaviour. For example, when the participant was politely asked to wait, the reinforcer would be the item/activity/attention that he had requested. As the participant met each objective, he was able to choose a one-on-one activity with the case manager.

**Program integrity.** Random observations to assess program implementation integrity were conducted by the researcher. This was done when the opportunity arose, meaning that when the researcher saw the staff implementing the procedures the researcher watched the interaction. After the interaction ended, the researcher approached the staff and either verbally coached the staff on proper implementation or praise for correctly implementing the procedures.
**Generalization.** Generalization was incorporated into the study from the beginning. By training staff to implement the intervention, it allowed the participant not to become dependent upon the researcher for being able to wait calmly when asked. Maintenance included follow-up sessions at one month. Random observations of the participant being able to wait calmly when asked were completed.
Chapter IV: Results

Functional Assessment

Review of case files (09-18-08). While reviewing Andrew’s case files, background information was collected but the files contained minimal information. It was found that the 19-year-old participant has a hearing impairment with a diagnosis of a Mild Developmental Delay, Attention Deficit Hyperactivity Disorder (ADHD), and Tourette’s syndrome. Prior to Andrew arriving at the transitional home in August of 2008, he spent some time in family homes due to his mother passing away and an abusive father. There was no history of prior behavioural, medical, or emotional issues. This was all of the information provided in the file but the staff at the transitional home keeps records of day-to-day activities and behaviours for all men residing there. Majority of the issues dealt with Andrew being aggressive towards housemates and staff. Protocol for dealing with any aggressive behaviour within the house involved a program called “No Frills”. This included all privileges lost for up to two weeks, depending upon the severity of the aggression.

Functional Analysis Interview Form (06-10-08) The Functional Analysis Interview Form, adapted from O’Neill, Horner, Albin, Storey, and Sprague (1990), was completed by the case manager in collaboration with the researcher (Appendix D). This interview helped identify areas where Andrew was experiencing the most difficulty and to narrow down the range of target behaviours. It was reported that Andrew was experiencing difficulty with his ability to wait calmly when asked, especially during times when staff are busy or distracted by other events or situations.

Sequential (ABC) analysis of baseline data (30-09-08 to 05-11-08) The observations and recording of occurrences of the participant’s ability and inability to wait calmly when asked
were recorded in an ABC chart (Appendix E). After careful analysis, it was suggested that the participant has the inability to wait calmly when asked. Majority of the occurrences happened when staff was busy or distracted by other events, for example, during shift change. In addition, the participant’s inability to wait calmly when asked occurred when he was running late with his morning routines.

**Baseline Assessment**

*Baseline recording of waiting calmly when asked (30-09-08 to 05-11-08)* Baseline consisted of observation sessions twice daily. The first session was from 8:00a.m. to 8:15a.m. and the second session from 5:30p.m. to 8p.m. The first session was the time between when the participant finished his morning routines and caught the school bus and the second session was when he returned from school until the end of the researcher’s shift. During the observations, the researcher and staff members collected data on the number of times that the participant was and was not capable of waiting calmly when asked. Depending on whether it was the researcher or a staff member interacting and asking the participant to wait, would depend on who recorded the data. The form used to record the data can be seen in Appendix F. Due to the researcher’s inconsistent schedule, data was grouped into groups of five occurrences of waiting or not waiting calmly when asked.

When viewing the raw data for baseline and intervention (Appendix G), it can be seen that data were put into groups of five occurrences. This was done so that treatment objectives could be set and a mean rate of responding could be determined. Group 5 only includes three occurrences of the target behaviour because due to time constraints, baseline data recording had to finish and treatment needed to begin as soon as possible. While the baseline data was not stable due to the first data point, the author decided to proceed with the
intervention, due to the limited time available for the study. Although data was not stable, there was an increasing trend. Overall, 20% of the data fell within a 15% of the mean ($M=31$).

**Intervention Results**

The use of visual cues and delayed reinforcement to increase the ability to wait calmly when asked was implemented over a six-week period, during the times that Andrew was either at the home or in the community with staff. The program was not implemented during the hours that he attended school, which was from 8:15 a.m. until approximately 4:30 p.m. The intervention phase was effective in increasing the participant’s ability to wait calmly when asked. The participant was able to achieve and surpass the first objective. He was also able to achieve and surpass the second objective. Table 1 lists the mean and median levels of Andrew’s ability to wait calmly when asked, as well as the standard deviations of the mean for baseline and intervention.

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<tr>
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<th>Baseline</th>
<th>Intervention</th>
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<tr>
<td>Mean (%)</td>
<td>31</td>
<td>63</td>
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<tr>
<td>Median (%)</td>
<td>40</td>
<td>50</td>
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<tr>
<td>Standard Deviation</td>
<td>15.5</td>
<td>21.3</td>
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</tbody>
</table>

In terms of Andrew’s overall ability to wait calmly when asked, there was an absolute increase of 31% from baseline ($M=31, SD=15.5$) to treatment ($M=63, SD=21.3$). The percentage of change from baseline to treatment is 103%. This is calculated by subtracting the baseline mean from the treatment mean, dividing that number by the baseline mean, and multiplying by 100.
Figure 1 presents the graph of Andrew’s ability to wait calmly when asked during baseline and intervention phases. The trend of the data for the intervention is slightly decreasing due to an outlier (see Appendix H for trend lines and median lines). The first group of occurrences for the intervention phase is the outlier where the participant waited calmly when asked 100% of the occurrences while the other five groups of occurrences returned to around the average rate of responding (31%) during baseline and continued to increase from there. Therefore, due to the first group of occurrences in the intervention, the trend is decreasing. Overall, the data during the intervention was not stable. Only 66.6% of the data fell within a 15% range of the mean ($M=63$).

**Andrew’s Ability to Wait Calmly When Asked**

*Figure 1: Andrew’s Ability to Wait Calmly When Asked*

*Note:* In the baseline phase, Group 5 does not contain 5 occurrences of the target behaviour. Due to time restraints, treatment needed to be implemented as soon as possible. Group 5 only contains three occurrences, once waiting calmly and twice not waiting calmly when asked, with a mean of 33%.
Chapter V: Discussion

Overview

In general, the results indicated that the visual cues and delayed reinforcement were successful in increasing Andrew’s ability to wait calmly when asked. In terms of Andrew’s overall ability to wait calmly when asked, there was an absolute increase of 32% from baseline ($M=31$) to treatment ($M=63$) and the percentage of change from baseline to treatment was 103%.

Although the intervention had a decreasing trend, the study was effective in increasing the ability to wait. The reason the trend was decreasing was due to an outlier in the data. The occurrences of the behaviour were grouped into five so that objectives could be made, but the first group of five occurrences in the intervention had a mean of 100%. This was the first day of the intervention and the participant was excited about receiving his reinforcement. Due to this high level of waiting calmly when asked, it makes the data appear as if it is decreasing because after the first day the participant went back down to around the baseline level of waiting calmly when asked, than slightly increased from there.

Program changes. Initially, wait assessments were to be conducted during baseline to establish the mean duration of time that the participant was capable of waiting but it became clear that it was not possible to measure the duration of waiting when the researcher was not there for most of the occurrences. Baseline would not have been very reliable.

During program planning, the initial idea was to use a written visual cue but being that the participant is fluent in sign language, it was changed to “wait” in sign language.
**Strengths**

Maintenance of the behaviour to wait calmly when asked was completed through the gradual increase of delay to reinforcement. As the participant was capable of waiting calmly when asked for the set amount of occurrences, the criteria for the objectives were systematically increased. Gradually increasing the objectives, allowed the participant’s behaviour to be maintained over longer periods.

Generalization was accounted for from the beginning because the staff rotated in their shifts and all were trained to implement the program. Each time Andrew was asked to wait, it could have been any staff, which promoted generalization among different mediators.

In addition, the study was conducted in the participant’s home, during regular times of the day where waiting was necessary. Waiting calmly when asked not only resulted in artificial reinforcement, like going to Tim Horton’s for coffee with the case manager, but also natural reinforcement, like having an after dinner coffee if he was able to wait calmly until after shift change was complete.

**Limitations**

Throughout the entire program, obstacles were encountered. The first being that at times there were situations that arose and took precedence over the program. For example, when the researcher planned to sit down with the participant and the case manager to obtain consent, on multiple occasions challenges within the house came up that interfered with these attempts. An example of an issue would be another individual that resides in the house would become agitated and begin escalating towards aggression. The staff would then need to turn their attention to the individual having an issue.
Another obstacle that was encountered was that not all staff remembered to record the data. There were instances when the researcher was around and had to prompt the staff to record that they had asked Andrew to wait and that he did or did not wait. Further research should be completed on treatment integrity to ensure proper implementation of intervention methods.

A limitation to the study is that the program was not implemented into the participant’s entire daily schedule. The program was not implemented within his school classes and activities. This was not done because the participant attended a school for the hearing impaired and there were large communication barriers between the staff at the transitional home and the staff at the community school. In addition, to the communication barriers, the participant did not want to be centred out among his peers while attending school. By not implementing into all contexts, any treatment gains may not be maintained because the school context may allow the participant to engage in inappropriate waiting behaviours.

Due to time constraints, the study had to be continued after the researcher had completed the required amount of hours, which meant that the researcher could not be at the home on a regular basis. After this point in time, more occurrences of the behaviour may have occurred but had not been recorded due to staff not remembering to record on the data-recording sheet.

Additionally, the lack of studies surrounding the hearing impaired population posed problems. It was difficult to obtain relevant literature, which in turn limited the information presented in the literature review.

**Multilevel Challenges to Service Implementation**

At the **client level**, there were several challenges to program implementation. First, due to the client being hearing impaired, it made it difficult to communicate clearly with the client,
unless fluent in American Sign Language. It was pointed out that the participant was able to communicate in a written form, so if a staff was not fluent in sign language, the individual could write notes back and forth between themselves and the participant. It was later noted that the client’s actual level of literacy was unknown until past assessments were sent to the case manager. Assessments suggested that the client’s level of literacy was lower than expected causing staff to rethink the notion that writing notes was an effective form of communication.

At the **program level**, the biggest challenge was the drastic changes in dynamics within the group home during the program implementation. Multiple clients were admitted to and discharged from the home. This seemed to cause an increase in inappropriate behaviours and added anxiety within all the clients residing at the home. A change within the clientele is sometimes hard to handle and at the same time, there were changes in supervisors and team leaders. This put additional anxiety on the staff because they were unsure of the new supervisor and team leader’s expectations and ways of dealing with issues and challenges within the house. Another challenge at the program level was when staff called-in sick or took time off, call back staff were called to fill in shifts. Some of the call back staff was new or not familiar with the individuals that live in the house. This made it difficult to ensure proper implementation of the program while the researcher was not there, even though clear mediator instructions were left in the protocols binder that all callbacks are to read each time they enter a different home.

At the **organizational level**, there was limited staff to implement programs due to client-staff ratio. In addition, the clients had very busy schedules, meaning that staff was in and out of the house constantly.

At the **societal level**, the difficulty that arose was that some of the individuals that reside in this group home are mandated by the court system to reside in the house until their probation
is complete. Once the probation is complete, the individual can then leave the house and go into
the community, whether or not they have made any progress to more socially acceptable
behaviours.

*Contributions to Behavioural Psychology Field*

The current thesis demonstrated the effectiveness of using visual cues and delayed
reinforcement to increase the ability to wait calmly in a man with a hearing impairment and dual
diagnosis. Even though there were several limitations, the results still indicate that the
intervention was successful. Importantly, this study was conducted outside of a controlled
environment and had successful results in an uncontrollable setting like the world we all live and
breathe in.

*Recommendations for Future Research*

Several recommendations can be made for future research. First, observing and collecting
data within all of the individual’s contexts that they live in is important. For example, getting
consent to do observations within a classroom setting or while at work. In addition, collecting
data on the staff’s responses to the participant’s requests is beneficial. For example, whether or
not the staff asks politely, using please and thank you.

Another recommendation comes from the fact that others may experience non-
compliance from staff, whether it is just recording data or actually implementing the program.
The possibility of a staff incentive program may be beneficial. Concerning setting one up, it
would have to be determined by the agency whether it would be cost-effective and efficient. A
behaviourist would surely say that positively reinforcing staff members would increase
probability that the desirable behaviour would be strengthened.

Finally, further research needs to be conducted on the effectiveness of wait programs.
REFERENCES


Fowler, S. A., & Baer, D. M. (1981). “Do I have to be good all day?” The timing of delayed


Appendix A
Dear Andrew,

I am a student in the Bachelor’s Degree in Behavioural Psychology program at St. Lawrence College. This four-year degree program is based on a behavioural framework, which has been demonstrated to be effective in developing positive skills with a wide range of individuals. Currently, I am completing an Applied Thesis that involves an intervention or project that I will summarize in a written report.

My intervention/project, Increasing the Ability to Wait Calmly Using Visual Cues and Delayed Reinforcement, will include collecting information around your ability to wait calmly during your morning routine and in the evening, what types of items or activities you enjoy most, and teaching you the skills necessary to wait calmly when asked. This program will include using index cards asking you to please wait. This intervention will be developed in collaboration with you, the agency’s staff, and team members. If you agree I will start working with you on waiting calmly on October 20th for six weeks. The other staff at the home may also participate in this program.

The potential benefits of participating in this project include being able to wait calmly when asked, which may in-turn increase the likeliness of people doing things for you. Sometimes, when a person is able to wait calmly they are more likely to get the things that they want. The risks of participating in this project are minimal. One risk is that it may be difficult for you to wait calmly and you may engage in behaviours that have negative consequences. For example, if you are unable to wait calmly and choose to engage in aggressive behaviours, the consequences are “no frills”. The project will be modified or stopped if the program creates distress you to minimize any risks.

This project has been approved by Pathways to Independence, by Michelle Wells and by the Research Ethics Board at St. Lawrence College. The intervention/project will be developed under the supervision of Marie-Line Jobin, my supervisor from St. Lawrence College, in collaboration with Michelle Wells of Pathways to Independence.

I would like your permission to implement the intervention/procedures described above. All information collected will be kept strictly confidential. The information will be coded and stored in a locked cabinet or on a computer. Upon request, we will gladly share a copy of a brief report of the intervention. Participation in this project is voluntary and you, Andrew may withdraw at anytime without incurring negative consequences to current or future treatment, and living situation at this home.

If you, Andrew, agree to participate in the project, please complete the form at the bottom of this letter and return it to me as soon as possible. A copy of this signed document will be given to you for your own records.
I sincerely appreciate your cooperation. If you would like to receive more information about the project or have additional questions or concerns, please contact my College Supervisor, Marie-Line Jobin at (613) 544-5400 ext. 1112.

Sincerely,

Lee-Anne Shaw
St. Lawrence College Student
I, ______________________, understand and consent to the following.

**NOTE:** all information identifying you, Andrew will be removed from any reports to protect confidentiality

_____ I consent for Andrew to participate in the intervention/project conducted by Lee-Anne Shaw.

_____ I consent for the data collected as part of this intervention/project to be put in a report in the college library.

_____ I consent for the data collected as part of this intervention/project to be presented at a conference.

_____ I consent for the data collected as part of this intervention/project to be published in a peer reviewed journal or professional publication.

Client/Guardian Signature: __________________ Date:__________________________
Printed Name: ________________________________

Witness Signature: ___________________________ Date:__________________________
Printed Name: ________________________________

SLC Student Signature: _______________________ Date:__________________________
Printed Name: ________________________________
AUTHORIZATION FOR RELEASE OF INFORMATION

I __________________________ hereby authorize consent to release to/or obtain

Individual

information from __________________________.

Source

Information to be released: Please check appropriate box.

☐ Information from my records in accordance with the policy of the agency, as may be necessary.

☐ I give Pathways the unqualified right to take videos or photographs of me and/or use videos and photographs of me for use in promotional materials such as newsletters, displays, websites etc.

☐ I give Pathways the unqualified right to display artwork or other works of art for promotional purposes with appropriate recognition given to the creator of the work.

Consent valid from _______ to _______

Date: (mm/dd/yy)  Date: (mm/dd/yy)

_________________________ __________________________
Signature of/or appropriate legal authority Date: (mm/dd/yy)

_________________________ __________________________
Witness Date: (mm/dd/yy)

*AUTHORIZATION must be signed by the client, or in the case of a minor by the parent or legal guardian whichever is the appropriate legal authority. In the case of a person who is physically or mentally disabled to such a degree is to be incapable to give consent, the next-of-kin may authorize release of information.

Distribution
Original: to person requesting information
Appendix C
**Mediator Instructions For Intervention Procedures**

**CLIENT NAME:** Andrew Shuttleworth  
**PROCEDURE:** Increasing the ability to wait calmly when asked

**MEDIATOR(S)*:** All Staff  
**LOCATION:** Transitional home

**TARGET BEHAVIOUR:**
Waiting calmly when asked will be said to occur when Andrew is asked to wait and displays the following behaviours:

- taking or consuming the item when he is told or signalled to take or consume the item
- being approximately 3 feet from the person who has asked him to wait
- engaging in appropriate behaviours, for example, when asked to wait he moves away from the area or possibly distracting himself while he waits

**STEPS:**

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
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<tbody>
<tr>
<td>1.</td>
<td>Andrew asks for something and he is asked to wait</td>
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<td>2.</td>
<td>If Andrew is not able to wait calmly when asked</td>
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<td>3.</td>
<td>Thank Andrew for waiting</td>
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<td>4.</td>
<td>Record data</td>
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When Andrew asks for help or for something (tea, etc.) and is required to wait due to staff being busy, ask him to wait using sign language. The sign to “wait” includes holding hands palm side up to the left of the body, then wiggling all fingers.

If Andrew is not able to wait calmly, ignore all behaviours.

Once you are able to give Andrew your attention or what he has asked for and he has waited calmly, thank him for waiting.

Once the interaction is over, fill in data recording sheet posted. Instructions are on data sheet on how to fill it out.
Appendix D
FUNCTIONAL ANALYSIS INTERVIEW FORM

Person with Challenging Behaviour(s) ____________________
Age _____ Sex M F

Interviewer ____________________ Respondent(s) _________________

Date of Interview __________

A. DESCRIBE THE BEHAVIOUR(S)

1. What are the behaviours of concern? For each, define the topography (how it is performed, frequency (how often it occurs per day, week, or month) duration (how long it lasts when it occurs), and intensity (What is the magnitude of the behaviours [high, medium, low]? Does it cause harm?).

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Topography</th>
<th>Frequency</th>
<th>Duration</th>
<th>Intensity</th>
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2. Which of the behaviours described above occur together? (e.g., occur at the same time; occur in a predictable “chain”; occur in response to the same situation)
B. DEFINE POTENTIAL ECOLOGICAL EVENTS THAT MAY AFFECT THE BEHAVIOUR(S)

1. What *medications* is the person taking (if any), and how do you believe these may affect his/her behaviour?

2. What *medical or physical complications* (if any) does the person experience that may affect his/her behaviour (e.g., asthma, allergies, rashes, sinus infections, seizures)?

3. Describe the *sleep patterns* of the individual and the extent to which these cycles may affect his/her behaviour.

4. Describe the *eating routines and diet* of the person and the extent to which these routines may affect his/her behaviour?

5. Briefly list below the person’s typical daily schedule of activities.

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<th>Enjoys</th>
<th>Problems</th>
<th>Enjoys</th>
<th>Problems</th>
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6. Describe the extent to which you believe activities that occur during the day are *predictable* for the person. To what extent does the person know what activities will be happening, when they will occur, and what will be the consequences (i.e., when to get up, eat dinner, shower, go to school, work, etc.)?

7. About how often does the person get to make choices about activities, reinforcers, etc.? In what areas does the person get to make choices (e.g., food, clothing, social companions, leisure activities)?

8. Describe the *variety of activities* performed on a typical day (exercise, community activities, etc.).

9. How many other people are in the setting (work/school/home)? Do you believe the *density of people or interactions* with other individuals affect the targeted behaviour(s)?

10. What is the *staffing pattern*? To what extent do you believe the number of staff, training of staff, quality of social contact with staff, etc., affect the targeted behaviour?

11. Are the *tasks/activities* presented during the day boring or unpleasant for the person or do they lead to results that are preferred or valued?
12. What outcomes are monitored regularly by parent / staff (frequency of behaviours, skills learned, activity patterns)?

C. DEFINE EVENTS AND SITUATIONS THAT PREDICT OCCURRENCES OF THE BEHAVIOUR(S)

1. Time of Day: When are the behaviours most likely? Least likely?
   Most likely______________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   Least likely____________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

2. Setting: Where are the behaviours most likely? Least likely?
   Most likely _________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   Least likely _________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

3. Social Control: With whom are the behaviours most likely? Least likely?
   Most likely _________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   Least likely _________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

4. Activity: What activity is most likely to produce the behaviour? Least likely?
   Most likely _________________________________________________________
   ________________________________________________________________
5. Are there particular situations, events, etc. that are not listed above that ‘set off’ the behaviours that are of concern (particular demands, interruptions, transitions, delays, being ignored, etc.)?

6. What would be the one thing you could do that would be most likely to make the undesirable behaviours occur?

7. Describe the person’s most typical response to the following situations.
   a. Are the above behavior(s) more likely, less likely, or unaffected if you present him/her with a difficult task?
   
   b. Are the above behaviour(s) more likely, less likely, or unaffected if you interrupt a desired event (eating an ice cream, watching TV)?
   
   c. Are the above behavior(s) more likely, less likely, or unaffected if you deliver a ‘stern’ request/command/reprimand?
   
   d. Are the above behavior(s) more likely, less likely, or unaffected if you are present but do not interact with (ignore) the person for 15 minutes or more?
   
   e. Are the above behavior(s) more likely, less likely, or unaffected by changes in routine?
   
   f. Are the above behavior(s) more likely, less likely, or unaffected if something the person wants is present but they can’t get it (i.e., a desired object that is visible but out of reach)?
g. Are the above behavior(s) more likely, less likely, or unaffected if they are alone (no one else is present)?

D. IDENTIFY THE “FUNCTION” OF THE UNDESIRABLE BEHAVIOUR(S). (WHAT CONSEQUENCES MAINTAIN THE BEHAVIOUR(S)?

1. Think of each of the behaviours listed in Section A, and try to identify the specific consequences or outcomes the person gets when the behaviours occur in different situations.

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Particular Situations</th>
<th>What exactly does s/he get?</th>
<th>What exactly does s/he avoid?</th>
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E. DEFINE THE EFFICIENCY OF THE UNDESIRABLE BEHAVIOUR(S). EFFICIENCY IS THE COMBINED RESULT OF (A) HOW MUCH PHYSICAL EFFORT IS REQUIRED, (B) HOW OFTEN THE BEHAVIOUR IS PERFORMED BEFORE IT IS REWARDED, AND (C) HOW LONG THE PERSON MUST WAIT TO GET THE REWARD.

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Low Efficiency</th>
<th>High Efficiency</th>
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F. DEFINE THE PRIMARY METHOD(S) BY THE PERSON TO COMMUNICATE

1) What are the general expressive communication strategies used by or available to the person (e.g., vocal speech, signs/gestures, communication books/boards, electronic devices, etc.)? How consistently are the strategies used?

2) Indicate which behaviours the person exhibits to achieve the following functions:

- Request attention
- Request help
- Request food / objects / activities
- Request a break
- Show you some - thing/place
- Indicate physical pain
- Indicate confusion
- Protest or reject situation

G. WHAT EVENTS, ACTIONS, AND OBJECTS ARE PERCEIVED AS POSITIVE BY THE PERSON?

1. In general, what are things (events, activities, objects, people) that appear to be reinforcing or enjoyable for the person?

H. WHAT FUNCTIONAL ALTERNATIVE BEHAVIOURS ARE KNOWN BY THE PERSON?

1. What socially appropriate behaviours / skills does the person perform that may be ways of achieving the same function(s) as the behaviours of concern?

2. What things can you do to improve the likelihood that a teaching session will occur smoothly?
3. What things can you do that would interfere with or disrupt a teaching session?

I. PROVIDE A HISTORY OF THE UNDESIRABLE BEHAVIOURS AND THE PROGRAMS THAT HAVE BEEN ATTEMPTED

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>How long has this been a problem?</th>
<th>Programs</th>
<th>Effects</th>
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Comments:
Appendix E
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<thead>
<tr>
<th>Date</th>
<th>Antecedents</th>
<th>Behaviour</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday, September 30, 2008</td>
<td>Asked for help setting up a movie in the DVD player, I tried to help but was unable, asked him to wait while I went to get a piece of paper to explain that I didn’t know what was wrong</td>
<td>Unable to wait for me to get paper, started to raise voice and make large arm gestures towards TV, asked again to wait while I went to get paper and a pen</td>
<td>Waited until I came back with paper but did not wait for me to write the note, started to make sounds and gestures</td>
</tr>
<tr>
<td>Thursday, October 2, 2008</td>
<td>Staff were in kitchen doing shift change after dinner, he asked for a tea through the window using sign language.</td>
<td>I nodded my head yes and signed to” please wait”. He then began opening the door to come in and start making the tea. Asked again to please wait and the door was closed behind him.</td>
<td>He stomped away with an angry expression on his face. Returned when the tea was made.</td>
</tr>
<tr>
<td>Friday, October 3, 2008</td>
<td>After dinner, each client is to complete a chore. His chore is always garbage and recycling.</td>
<td>He was asked to wait to take the garbage until the dishes had been done in case there was any leftover food to go in the garbage. Began taking garbage bag out of garbage</td>
<td>Asked a second time to please wait, stomped away with an angry expression. Returned when told that he could complete his chore now</td>
</tr>
<tr>
<td>Tuesday, October 7, 2008</td>
<td>Staff were in kitchen doing shift change after dinner, he asked for a tea through the window using sign language.</td>
<td>Staff asked him to wait until shift change was over using sign language.</td>
<td>Continued knocking at door to come in. Asked again to wait until they were done</td>
</tr>
<tr>
<td>Wednesday, October 8, 2008</td>
<td>Staff were in kitchen doing shift change after dinner, he asked for a tea through the window using sign language.</td>
<td>Staff asked him to wait until shift change was over using sign language.</td>
<td>Continued knocking at door to come in. Asked again to wait until they were done</td>
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<tr>
<td>Date</td>
<td>Details</td>
<td>Action</td>
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<tr>
<td>Saturday, October 11, 2008</td>
<td>Had to be at work by 9a.m. but staff was running a little bit behind with morning routines.</td>
<td>Asked to leave kitchen and find something to do while he waited for staff to finish routines (meds, breakfast, etc.) to take him to work. Would not leave kitchen, asked again to leave and find an independent activity while he waits. Put jacket and shoes on and went and sat in the van for almost 15 minutes.</td>
<td></td>
</tr>
<tr>
<td>Sunday, October 12, 2008</td>
<td>Wanted to help make breakfast with staff, told to wait until more of the guys were up to eat</td>
<td>Would not leave kitchen when asked to leave, made loud noises and gestures. Asked again to leave and wait, this time leaving the kitchen.</td>
<td></td>
</tr>
<tr>
<td>Monday, October 13, 2008</td>
<td>Running late with his morning routines, came and asked for his pills. Asked to wait until the RC2 staff had finished getting everyone’s morning pills out</td>
<td>Began making loud noises and gestures with his arms, indicating he needed his pills then or he was going to be late for his school bus. Asked again to wait outside of the kitchen. Stomped out of the kitchen angrily, receiving his pills once the RC2 staff was finished.</td>
<td></td>
</tr>
<tr>
<td>Thursday, October 16, 2008</td>
<td>House rule is that everyone is to stay at the table until everyone else is done eating.</td>
<td>Got up to leave the table because he was finished eating. Staff signed to him to please sit down and wait until everyone else was finished eating. Sat down and waited. Staff signed “Thank you”</td>
<td></td>
</tr>
<tr>
<td>Friday, October 17, 2008</td>
<td>Staff were in kitchen doing shift change after dinner, he asked for a tea through the window using sign language.</td>
<td>Staff asked him to wait until shift change was over using sign language. Gestured “OK” and walked away. Given tea as soon as shift change was over.</td>
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<tr>
<td>Tuesday, October 21, 2008</td>
<td>Another individual that lives in the house was sitting in the living room wanting to change the channel.</td>
<td>The participant came in to the living room wanting to change the channel. Went downstairs to watch TV by himself.</td>
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<tr>
<td>Date</td>
<td>Event</td>
<td>Participant's Reaction</td>
<td>Additional Details</td>
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<tr>
<td>Sunday, October 26, 2008</td>
<td>Watching a TV program.</td>
<td>The participant told him to wait until his TV program was over than he could watch what he wanted. Turned and walked away with his body language suggesting he was agitated.</td>
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<tr>
<td>Sunday, October 26, 2008</td>
<td>Got his allowance and went to Toys R Us with 2 staff.</td>
<td>Began wandering away from staff while in store. Asked to wait for staff when changing to a different area.</td>
<td>Started waiting for staff before leaving one area</td>
</tr>
<tr>
<td>Monday, October 27, 2008</td>
<td>Staff were in kitchen doing shift change after dinner, he asked for a tea through the window using sign language.</td>
<td>Staff asked him to wait until shift change was over using sign language. Continued knocking at door to come in.</td>
<td>Asked again to wait until they were finished. Stomped away with body language suggesting he was upset.</td>
</tr>
<tr>
<td>Thursday, October 30, 2008</td>
<td>Preparing for his school Halloween dance, wanted whiskers painted on his face to complete his cat costume. Asked to wait until staff had finished painting the faces of the other individuals in the home.</td>
<td>Gestured “OK” and returned to his activity (Lego).</td>
<td>Called into the bathroom when it was his turn</td>
</tr>
<tr>
<td>Friday, October 31, 2008</td>
<td>Everyone was eating dinner and he had finished his before everyone. He stayed seated at the table following the house rule.</td>
<td>Got a deck of cards and began playing solitaire at the table. Staff asked him to put the cards away and wait until everyone was finished eating.</td>
<td>Body language suggested that he was agitated and ignored staff. Staff got his attention again and asked him to wait please. He gathered up the cards and put them away with a loud bang.</td>
</tr>
<tr>
<td>Tuesday, November 5, 2008</td>
<td>All staff and individuals sitting</td>
<td>Finished his dinner before everyone and</td>
<td>Staff did not enforce the rule of staying at</td>
</tr>
<tr>
<td>Date</td>
<td>Event Description</td>
<td>Waited Until</td>
<td>Received/Did Not Want To</td>
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<tr>
<td>Thursday, November 13, 2008</td>
<td>Sitting down eating dinner, he asked for seconds. Asked to please wait.</td>
<td>Waited until staff got his seconds.</td>
<td>Received seconds of dinner.</td>
</tr>
<tr>
<td>Friday, November 14, 2008</td>
<td>Wanted to play cards with staff, staff asked him to wait until they were finished helping with chores.</td>
<td>Left area with body language suggesting agitation. When finished, staff went to him and asked if he wanted to play cards now</td>
<td>Did not want to play cards anymore because he had to wait.</td>
</tr>
<tr>
<td>Sunday, November 16, 2008</td>
<td>Wanted to start a puzzle on the dining room table, asked to wait until after dinner or put puzzle on a board.</td>
<td>Did not put puzzle on board or wait until after dinner.</td>
<td>Had to take apart puzzle when the table needed to be set and body language suggested that he was agitated.</td>
</tr>
<tr>
<td>Tuesday, November 18, 2008</td>
<td>Running late for the bus in the morning, asked for a piece of toast. Staff said yes and asked him to wait outside of the kitchen.</td>
<td>Left the kitchen.</td>
<td>Received toast as soon it was done.</td>
</tr>
<tr>
<td>Wednesday, November 19, 2008</td>
<td>Asked for a tea after dinner chores were finished. Staff said yes and asked him to wait outside the kitchen until it was ready.</td>
<td>Did not want to leave the kitchen became obviously agitated. Asked to wait outside again.</td>
<td>Left kitchen angrily, came back when kettle was boiled.</td>
</tr>
<tr>
<td>Saturday, November 22, 2008</td>
<td>Asked staff to play cards. Staff asked him to wait until they were finished cleaning up after dinner.</td>
<td>Sat at the table and waited for staff to finish.</td>
<td>Played cards with staff.</td>
</tr>
<tr>
<td>Sunday, November 23, 2008</td>
<td>Another individual who lives in the dining room</td>
<td>Got up and started to head to kitchen, Sat and waited but continued to look at</td>
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<tr>
<td>Monday, November 24, 2008</td>
<td>Attends cooking class every other week. Staff was waiting on a phone call to let them know if it was happening tonight. Asked to wait.</td>
<td>Kept saying that cooking class was every week and body language suggests he was becoming agitated. Left kitchen. Came back saying it was time to go to cooking class but no phone call had been received. Asked to wait again</td>
<td>Continued being agitated so staff decided he was not going to class even if it was happening because of his attitude towards staff.</td>
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Appendix F
Andrew’s Ability to Wait

Each box represents one occurrence of Andrew’s ability or inability to wait calmly when asked. Waiting calmly when asked will be said to occur when Andrew is asked to wait and displays the following behaviours:

- taking or consuming the item when he is told or signalled to take or consume the item
- being approximately 3 feet from the person who has asked him to wait
- engaging in appropriate behaviours, for example, when asked to wait he moves away from the area or possibly distracting himself while he waits

For each occurrence of asking Andrew to wait, starting from left to right, check one box with either a checkmark if he was able to wait calmly or put an “x” if he was unable to wait calmly. Once the first row is filled in completely, move down to the next row.

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Objective # 1

If Andrew is able to get at least 2 checkmarks in each row, he will be able to go on a one-to-one outing. For example to Tim Horton’s for a tea and treat.
Appendix G
### Occurrences of Andrew's Ability to Wait Calmly When Asked

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<td>Group 1</td>
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<td>Occurrences</td>
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Appendix H
Andrew's Ability to Wait Calmly When Asked

Baseline

Treatment

Percentage of Waiting Calmly When Asked

Group of Occurences

Trend Line

Median Line