Using Positive Reinforcement, Prompting and Active Rehearsal to Increase Social-Skills Use in Adults with Intellectual and Developmental Disabilities

By

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Dedication

To my family and friends.

Love you. Thank you for all of your support during this process.
Abstract

Individuals with intellectual or developmental disabilities often have difficulties interacting with other individuals. They may have challenges comprehending the use of appropriate social skills that are necessary for social interaction. The current study evaluated the use of positive reinforcement, active rehearsal, and prompting to increase appropriate social skills in adults with intellectual and developmental disabilities. This study included three adult participants with developmental delays who received the intervention over five weeks in a community living agency. Observation of social skill use and social skills questionnaires were used at pre and at post-intervention to determine if there was a change in social skills displayed. Social skills were defined as verbally speaking to other people, maintaining eye contact with other people, knowing what is an appropriate distance to maintain when interacting with other people, acknowledging other people, and using appropriate tone of voice and facial gestures. The results of the study were that all three participants demonstrated social skills during more observation intervals at post-intervention. The participants also self-reported using social skills more frequently on the Social Skills Questionnaire at post-intervention. More research is required on the use of positive reinforcement, active rehearsal, and prompting and their utility to increase the use of social skills in adults with intellectual and developmental disabilities in different settings. Additionally, follow up studies would indicate whether the positive results last over time.
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Chapter I: Introduction

There are numerous important factors that explain the way an individual behaves (Berkovits & Baker, 2014). One of these important factors is social competence (Berkovits & Baker, 2014). Social competence is typically developed in childhood and is an essential component of the individual’s development (Berkovits & Baker, 2014). Social competence determines how an individual behaves in various settings and shows how effective they are in their interactions.

The ability to relate to other people in a social setting is regarded as a social skill (Avcioglu, 2013). This includes being able to begin and keep positive interactions going with other individuals (Gardner & Heward, 1991). These skills are also regarded as being able to meet the purpose of the social interaction (Gardner & Heward, 1991). Constructive social skills are learned and allow positive social interaction to happen between people, which results in favourable consequences (Gardner & Heward, 1991).

Social interaction is how people integrate themselves with others (Nicholson & Cooper, 2013) and needs to occur in order for social inclusion to happen (Johnson, Douglas, Bigby & Iacano, 2012). Issues with social interaction typically in individuals with intellectual and developmental disabilities manifest through deficits in socialization (Matson, Hattier & Turyn, 2012). These individuals typically do not have the ability to express themselves in various ways or to comprehend topics such as policies, roles and responsibilities through communication (Van Nijnatten & Heestermans, 2012). The results of these issues with social skills are normally not being accepted socially, and not having stable, lasting relationships (Berkovits & Baker, 2014).

Numerous works have identified reinforcement as an efficient way to teach social skills to adults (Weiss & Harris, 2001). Specifically in the forms of tangible reinforcement and (Sigafos, et al., 2009) tactile reinforcement, (Tzanakaki et al., 2014) and accompanied by the use of prompts (Singh, & Millichamp, 1987). Increases in social interaction in developmentally delayed females have also been noted following the use of visual prompts (Singh, & Millichamp, 1987). Socially mediated prompts are recognized for contributing to individuals’ comprehension of social functioning (Ashton-James & Chartrand, 2009). Socially mediated prompts are prompts that are delivered to an individual by other people implementing an intervention (Ashton-James & Chartrand, 2009).

It has further been shown that when active rehearsal (e.g. in vivo practice) is involved in situations in treatment that it leads to increases in social skills of individuals with intellectual and developmental disabilities (Senatore, Matson, & Kazdin, 1982). Active rehearsal in the form of scripts and social stories is beneficial to individuals with intellectual and developmental disabilities as increases in communication have been noted (Senatore et al., 1982).

In Ontario, the government has announced more funding for individuals with various disabilities. Assisting adults with intellectual and developmental disabilities to become full participants in their communities is the rationale for this study. It is known that individuals with both intellectual and developmental disabilities naturally experience difficulties with social skills, social interaction, and, as a consequence, social inclusion so if these individuals can be assisted with these skills their lives may be improved. For example, having the ability to ask for what they want may allow individuals with disabilities to obtain what they need from a service provider.

Assisting adults with intellectual and developmental disabilities to become full participants in their communities is the focus of the present study. The use of positive reinforcement, prompting, and active rehearsal to increase social skills use in adults with intellectual and developmental disabilities was evaluated. This was considered an appropriate goal because the level of social interaction for these individuals that lack in social skills is greatly
affected. When individuals with disabilities are given time, attention, assistance and resources that can assist them, their involvement in their community is increased.

The purpose, aims and objectives of the thesis were to increase the participants social interactions with individuals in their community through the use of positive reinforcement, prompting and active rehearsal. It was hoped that this would contribute to their understanding of social reciprocity and social inclusion in social interactions.

It was hypothesized that the use of positive reinforcement, prompting and active rehearsal would lead to an increase in the number of social skills displayed by adults with both intellectual and developmental disabilities.

The chapters that will be covered in this thesis include a review of the research literature relevant to social skills, and a methodology of the present study that includes a description of the participants, design, methods, and procedures used, and the results that will be interpreted through visual analysis. Finally, the discussion chapter will summarize the study and its’ findings in the context of the literature. The implications for future research will also be addressed.
Chapter II: Literature Review

Developing different communication skills such as language are acknowledged as critical for adults with intellectual and developmental disabilities (Hippolyte, Iglesias, Van der Linden, & Barisnikov, 2010). Walton and Ingersoll (2013) mentioned that individuals with disabilities tend to display fewer social skills than individuals who have developed typically.

Difficulties with comprehension of social cues and social interaction are two of the main causes of communication barriers that individuals with various intellectual and developmental disabilities must deal with (Mackay, Knott & Dunlop, 2007). Some of the main obstacles include: engaging in reciprocal interaction, interpreting other peoples’ perspective, and possessing knowledge of concepts including friendship (Mackay et al., 2007). Communication skills that are non-verbal and verbal were both influenced (Mackay et al., 2007). Among these skills are the inability to adjust the topic of conversation so that it is well-suited to social context and the needs of the listener, not being able to use eye gaze appropriately, and not being aware of turn-taking in conversation (Mackay et al. 2007). Due to these issues, the implementation of a social skills intervention is essential (Mackay et al. 2007).

Reinforcement

Numerous works have identified reinforcement as an efficient way to teach social skills to adults (Weiss & Harris, 2001). Tangible reinforcement is an effective mode of improving social interaction in individuals with intellectual and developmental disabilities (Sigafoos, et al., 2009). Preferred items such as edibles, stickers, and awards encourage socialization (Sigafoos, et al., 2009). The use of tactile reinforcement in the form of touch such as a pat on the back or a “high five” has also been shown to increase social interaction in individuals with intellectual and developmental disabilities (Tzanakaki et al., 2014).

Reinforcement was used in a study in which children with autism and their peers of the same-age were trained by their teachers to improve their social skills (Gonzalez-Lopez & Kamps, 1997). The goals of the study were to increase the social skills being displayed by the young children in various settings (Gonzalez-Lopez & Kamps, 1997). Social skills included following instructions, initiating conversation, requesting items and asking for assistance (Gonzalez-Lopez & Kamps, 1997). The participants were four children that had autism and 12 typically developing children that attended elementary school together (Gonzalez-Lopez & Kamps, 1997). A reversal design that consisted of two intervention conditions was utilized (Gonzalez-Lopez & Kamps, 1997). The conditions of this study contained baseline followed by social skills training, followed by social skills training with reinforcement, back to baseline and finally social skills training with reinforcement again (Gonzalez-Lopez & Kamps, 1997). The baseline conditions were 20-minute play groups that did not include feedback or intervention other than prompting the children to remain in the area (Gonzalez-Lopez & Kamps, 1997). The first intervention was ten minutes of social skills training with ten minute play groups after in which no feedback was provided (Gonzalez-Lopez & Kamps, 1997). The second condition of intervention involved social skills training, ten minute play groups and positive reinforcement when appropriate interaction was shown (Gonzalez-Lopez & Kamps, 1997). Baseline then followed (Gonzalez-Lopez & Kamps, 1997). The third intervention condition included social skills training again, with reinforcement (Gonzalez-Lopez & Kamps, 1997).

Increased interaction time of the children was shown as a result of this study through the use of social skills training and reinforcement (Gonzalez-Lopez & Kamps, 1997). Constant use of greetings, initiating conversation, following instructions and replying by the children were all noted as a strength of the study (Gonzalez-Lopez & Kamps, 1997). A limitation of this study was that more teaching is needed than could be performed in ten minutes for some of the specific
In a study by Schmidt, Luiselli, Rue & Whalley (2013), graduated exposure and positive reinforcement were used to prevent and eliminate activity and setting avoidance in an adolescent (Jonah) with autism (Schmidt et al., 2013). Graduated exposure can be defined as the use of different criteria to encourage Jonah to enter settings (Schmidt et al., 2013). Positive reinforcement was the use of food that was given to Jonah after he had participated in an activity (Schmidt et al., 2013).

This study took place at a specialized school for intellectual developmental disorder that Jonah attended and where he received one-on-one instruction for six hours every day of the week (Schmidt et al., 2013). Phase 1 involved a changing criterion design and a multiple baseline design that was employed across settings (Schmidt et al., 2013). Phase 1 had the objective of determining how close Jonah would get to every activity area (Schmidt et al., 2013). A distance hierarchy was utilized and a preferred edible was given to Jonah. The researcher wanted Jonah to approach the doorway of every area while not displaying his problem behaviours (Schmidt et al., 2013). The goal of Phase 2 was to increase how long Jonah would be engaged in every activity area without displaying problem behaviours (Schmidt et al., 2013). Differential reinforcement and gradual exposure were employed (Schmidt et al., 2013).

A timer was set by staff to calculate a criterion duration that calculated how long Jonah had to stay in the setting (Schmidt et al., 2013). Verbal prompts were used to keep Jonah involved in the activities, and praise accompanied by an edible was given by the staff after the timer went off (Schmidt et al., 2013).

It was shown from this study that the combination of graduated exposure and positive reinforcement was successful in eliminating activity and setting avoidance in an individual with autism (Schmidt et al., 2013).

Positive effects from the intervention were maintained when Jonah was around his peers and multiple staff (Schmidt et al., 2015). A limitation of this study was that a functional analysis of Jonah’s avoidance was not carried out by the researcher (Schmidt et al., 2015).

Another study in which reinforcement was used was a study by Senatore et al. (1982) with the objective of improving and teaching social skills to adults with developmental delays. The participants that were involved in this study were 35 participants that were both male and female with moderate to severe developmental delays (Senatore et al., 1982).

These individuals were assessed on their inappropriate social skills and placed into one of three groups (Senatore et al., 1982). The first group were administered a training package for standard social skills (Senatore et al., 1982). The second group were given a package for social skills involving active rehearsal (Senatore et al., 1982). The third group served as a control (Senatore et al., 1982).

Reinforcement, role play, instructions, performance feedback, and modelling were all involved in the package addressing social skills (Senatore et al., 1982). The package that used active rehearsal included the same methods for training but also involved the use of active practice in scenarios, prompts, and the attenuation of the control that the therapist possessed (Senatore et al., 1982).

Active rehearsal used with reinforcement, role play, instructions, performance feedback, and modelling were noted for being effective in increasing social skills in adults with developmental delays (Senatore et al., 1982).

The treatment effects were able to generalize to a more natural environment and lasted for six months (Senatore et al., 1982). While the active rehearsal package and practice increased
social skills, the specific dimensions responsible that caused the increases were not identified (Senatore et al., 1982).

These studies show that reinforcement was effectively used with individuals with developmental delays and autism. Reinforcement paired with active rehearsal, role play, instructions, performance feedback, and modelling was noted for being effective in increasing social skills in adults with developmental delays (Senatore et al., 1982). These combinations were able to cause behaviour to generalize and sustain for six months (Senatore et al., 1982).

It was also shown that positive reinforcement utilized with graduated exposure was successful in eliminating activity and setting avoidance in an individual with autism (Schmidt et al., 2015).

Prompts

Inappropriate social interaction was observed to have decreased in individuals with developmental disabilities through the employment of visual prompts (Singh & Millichamp, 1987). These increases were also noticed to have remained in the behaviours displayed by the developmentally delayed females for 12 months after the programmed maintenance that was used had finished (Singh & Millichamp, 1987). In regards to social interaction, socially-mediated prompts - including asking a subject to return to her seat - are also effective at contributing to individuals’ comprehension of social functioning so that they are able to understand what is appropriate behaviour during certain times of the day (Singh & Millichamp, 1987).

Visual prompts were used by Sigafoos et al. (2009) in their study which focused on the different forms of communication, including alternative and augmentative prompts. Alternative and augmentative prompts involved the use of picture exchange and speech-generating devices (Sigafoos et al., 2009). Picture exchange involves an individual obtaining a picture or drawing a picture of an object that is highly preferred and presenting it to a communicative partner to be given the real, matching item (Sigafoos et al., 2009). The intervention of speech-generating devices occurs when the learner touches a picture or sketches a line on an electronic speech-output device (Sigafoos et al., 2009). One of these actions then causes a relevant, pre-recorded message such as “I want __________” (Sigafoos et al., 2009).

The researchers compared the results of the intervention of picture exchange versus the use of speech-generating devices and their effects on social interaction (Sigafoos et al., 2009). The participant observed was a teenage boy, named Trevor, who had a developmental disability (Sigafoos et al., 2009).

The purpose of the first intervention was to contrast the attainment of requesting responses through the use of picture exchange versus those of speech-generating devices (Sigafoos et al., 2009). They used procedures that were added in the second intervention to determine if a preference was shown by the individual for the use of picture exchange over speech-generating devices (Sigafoos et al., 2009). The third intervention by Sigafoos et al. (2009) was based on determining if the amount of social interaction would increase in sessions defined as requesting sessions if the distance changed between the trainer and the individual. Picture exchange was also used (Sigafoos et al., 2009).

The first intervention showed that manipulating the distance was highly effective in decreasing social withdrawal (Sigafoos et al., 2009). In the second intervention, easy accessibility and easy-to-use devices were determined as likely to be employed (Sigafoos et al., 2009). The third intervention results showed that getting the trainer to move 120 cm further past the table was successful in reducing Trevor’s socially withdrawn tendencies (Sigafoos et al., 2009).

This study also demonstrated that graduated guidance, consistent availability to highly
preferred items, and structured opportunities were successful in inculcating requesting skills for this population (Sigafoos et al., 2009). A limitation of the current study was that it was only based on a single participant that was socially withdrawn but had a high level of ability to ask for preferred items (Sigafoos et al., 2009).

Socially-mediated verbal prompts were used in this study by Allen, Burke, Howard, Wallace and Bowen (2012) in adolescents with both intellectual disabilities and Autism Spectrum Disorders (Allen et al., 2012). Socially-mediated prompts are prompts that are delivered to an individual by other people who carry out the intervention (Allen et al., 2012). The goal of the study was to determine if socially-mediated verbal prompts in the form of audio cuing would increase community employment opportunities for people with intellectual disabilities and autism (Allen et al., 2012). Audio cuing is the use of a verbal prompt such as “Rocky, give those nice folks a big wave,” by a person in the course of the study to help the participant meet the objectives (Allen et al., 2012).

Three adolescents participated in this study (Allen et al., 2012). They were between the ages of 16 and 18 (Allen et al., 2012). Two types of interventions were included in this study: audio cuing and modelling (Allen et al., 2012). Skills such as initiating conversation with customers and producing appropriate responses in conversations were taught through these interventions (Allen et al., 2012). In the Audio-cuing condition, the participants were told to “Listen to what the attendant tells you. He/she will provide you with ideas for things that you can say to customers to interact with them.” (Allen et al., 2012). The attendant then provided prompts for action (Allen et al., 2012). Things such as “Rocky, give that girl a hug” were used as a prompt (Allen et al., 2012). Praise was also used with the participants after they had interacted with the shoppers (Allen et al., 2012). During video modelling, the participants sat and observed the standard training videos that were utilized by the employer (Allen et al., 2012).

In the results, researchers stated that video modelling was not as effective (Allen et al., 2012). Overall, the audio cuing procedure resulted in instantaneous and lasting improvements in performance (Allen et al., 2012).

A strength of this study was that audio cuing resulted in job performances that were above the criteria that was expected in training and while working (Allen et al., 2012). A limitation of this study was that all of the phases were very short (Allen et al., 2012). This resulted in the performance of the participants trending downward at times (Allen et al., 2012). If the phases could have been longer then perhaps the performance of the participants could have trended back upward (Allen et al., 2012).

In a study by Gower (2005), a four year old boy with a developmental disability in the form of autism was taught verbal and physical sharing with peers in a preschool classroom. The peers in this integrated preschool classroom were regarded as being typically developing (Gower, 2005). Prompts, priming, contingent praise and social reinforcement were used by an instructor to teach sharing to this child (Gower, 2005).

Jamie, the four year old with autism only possessed rudimentary speech (Gower, 2005). He communicated only in short phrases and single words (Gower, 2005). This was typically to request objects and activities (Gower, 2005). An example of this was “I want” (Gower, 2005). Jamie was capable of following one-step directions in routines at home and at school (Gower, 2005).

This study took place in an integrated preschool classroom in a private school that was developed for children with developmental disabilities (Gower, 2005). Specifically, for children between three to 12 years old (Gower, 2005). The procedures were used in the classroom during the play session that lasted 30 minutes (Gower, 2005). The children that were involved were able
to interact in different centers that included books, games, toys and craft materials (Gower, 2005). There were three to five children in the play session with Jamie that was supervised by an instructor (Gower, 2005). The instructor was either an assistant or the classroom teacher (Gower, 2005).

There were two behaviours that were measured- physical sharing and verbal sharing (Gower, 2005). “Physical sharing was defined as Jamie (1) handing play materials to another child, (2) allowing another child to take his play materials, (3) using play materials that another child had during the same play session, and (4) simultaneously manipulating play materials with another child during an activity” (Gower, 2005). The second behaviour verbal sharing was recognized as “all verbal attempts at initiating physical sharing or verbal acceptance of such attempts, which included Jamie (1) requesting play materials from another child, and (2) asking a child to share play materials” (Gower, 2005). In intervention, the prompts that were used to encourage sharing were also recorded (Gower, 2005). A prompt was regarded as “the instructor giving Jamie a verbal direction to share with a child” (Gower, 2005). An example of this was “Jamie, give the truck to Ben” (Gower, 2005). The frequency of prompts, verbal sharing and physical sharing were recorded in the beginning ten minutes of the play session of 30 minutes (Gower, 2005).

Baseline consisted of the instructor telling Jamie and the other children to partake in the activities (Gower, 2005). The play session was then monitored by the instructor and comments about appropriate behaviours were given (Gower, 2005). The first phase of intervention involved the instructor sitting with Jamie and a peer at a table away from the other children (Gower, 2005). The instructor then described why sharing is important and how to share (Gower, 2005). An example of this was “We can share by giving other children things when they ask nicely for them” (Gower, 2005). After this, Jamie watched two to three examples of physical and verbal sharing that were demonstrated by the instructor and the peer (Gower, 2005). Jamie then practised this with the instructor and was given praise (Gower, 2005). Finally, Jamie was guided to perform physical and verbal sharing with another child while being provided feedback and praise (Gower, 2005). Jamie and his peer were then escorted to the play area in the classroom (Gower, 2005). Here, the play session and the ten minute recording period began (Gower, 2005). In the session, Jamie was presented with a prompt to share after one minute had passed and he hadn’t shared (Gower, 2005). He was also delivered praise every time that he shared (Gower, 2005). The second phase of intervention consisted of Jamie being asked to start the session (Gower, 2005). In these sessions, prompts continued to be given to Jamie with praise for physical and verbal sharing as in the first phase of intervention (Gower, 2005).

In both phases of intervention, it was noted that verbal sharing increased (Gower, 2005). Physical sharing increased in the first phase but decreased in the second phase when praise and prompts were only provided (Gower, 2005).

A strength of this study is that the use of priming before a play session utilized with prompting and reinforcement in the sessions resulted in increased sharing behaviours (Gower, 2005). A limitation of this study is that the conclusion of using the full component intervention was needed in order to support both sharing behaviours should be viewed as tentative due to the intervention procedures never being withdrawn systematically after maintenance assessment (Gower, 2005).

From these studies, it was noted that the use of visual prompts was successful in increasing communication in individuals with developmental disabilities (Sigafoos et al., 2009). Audio cuing in the form of verbal prompts resulted in instantaneous and lasting improvements in the performance of skills utilized in the conversations of individuals with autism and intellectual
disabilities (Allen et al., 2012). The use of verbal prompts was also shown to increase verbal sharing – which involved the use of social skills in children with autism (Gower, 2005). This study shows that if children with autism can be taught how to initiate communication and engage in verbal requests in order to promote sharing then adults with autism would also be able to develop these skills (Gower, 2005).

**Active Rehearsal**

Research has supported that active rehearsal can lead to increases in social skills with adults with intellectual and developmental disabilities (Senatore et al., 1982). Active rehearsal is defined as individuals receiving instructions in order to recite a dialogue from a script, narrative or social story to promote speech and initiation of conversation in individuals (Senatore et al., 1982). Active rehearsal in the form of scripts and social stories has been shown to be beneficial to such individuals by increasing the amount of social interaction through practice of social skills (Senatore et al., 1982).

Personal narratives were used in a study with an intellectually disabled victim of sexual abuse to assist her in getting over her past trauma (Van Nijatten & Heestermans, 2012). In this study, the counsellor had the individuals maintain an active position when discussing sexuality and helped with making personal narratives (Van Nijatten & Heestermans, 2012). Personal narratives are regarded as active rehearsal because in this study, the individuals were able to express themselves through stating the personal narratives that they created aloud (Van Nijatten & Heestermans, 2012). Some of these individuals were not able to discuss this content initially or even engage in conversations with others to this extent (Van Nijatten & Heestermans, 2012).

Four conversations were studied between a counsellor named Susan and a 30 year old woman with mild intellectual disability and autism named Maria (Van Nijatten & Heestermans, 2012). During these conversations, Maria told her personal stories to Susan (Van Nijatten & Heestermans, 2012). The use of discourse and conversational analysis were used to analyze these 60 minute conversations (Van Nijatten & Heestermans, 2012).

The researchers concluded that even if limitations in communication were present, clients that have an intellectual disability were able to engage in conversations with others and be empowered (Van Nijatten & Heestermans, 2012). Empowerment was regarded as gaining the client’s unique wording and input (Van Nijatten & Heestermans, 2012). The settings in which this communication occurred can be utilized to empower clients by providing support for their personal narratives (Van Nijatten & Heestermans, 2012). The telling of personal stories is a way for individuals to interact with other individuals (Van Nijatten & Heestermans, 2012). It is a way in which people can manifest themselves and develop a theory of self (Van Nijatten & Heestermans, 2012). Unfortunately, the findings from this study were not generalizable to the interactions that take place during the day between the clients that have an intellectual disability and their workers as more research is required to comprehend the use of particular conversational techniques in communication between these individuals and the individuals that work with them to support them (Van Nijatten & Heestermans, 2012).

Scattone, Tingstrom and Wilczynski (2006) reported on the use of Social Stories with three participants that were either in childhood or adolescence and who were diagnosed with autism spectrum disorder. Social stories are comparable to interventions such as written scripts and self-management (Scattone et al., 2006). The essential components of a social situation are identified through text (Scattone et al., 2006). Social stories are read to participants and then they are expected to read them aloud to the teachers (Scattone et al., 2006).

The researcher’s question was whether their social skills would improve by encouraging them to engage in more appropriate social interactions. The participants’ involved in this study
were three boys aged eight to 13 years of age, Steven, Billy and Drew (Scattone et al., 2006). The researcher’s intervention consisted of a Social Story being read to every participant (Scattone et al., 2006). When the Social Story was presented for the first time, comprehension questions were used by the teacher to determine the participant’s level of understanding (Scattone et al., 2006). After this, each participant was expected to read the Social Story out loud to the teacher (Scattone et al., 2006). It was then noted by the teachers if the Social Story was read by the participant or if the Social Story was read to the participant (Scattone et al., 2016).

No changes in appropriate social interactions were shown by Steven but Billy demonstrated increases in appropriate interactions (Scattone et al., 2006). The largest increase of social interactions that were appropriate was demonstrated by Drew (Scattone et al., 2006). The authors concluded that social stories did result in a marked increase in the amount of appropriate social interactions shown by at least one participant (Scattone et al., 2006).

A strength of this study was that immediate treatment effectiveness occurred for Drew (Scattone et al., 2006). This study could have been improved by adding more time, sessions and participants (Scattone et al., 2006).

A study by Mackay et al. (2007) had the goal of enhancing socialization for people with various levels of autism spectrum disorder (Mackay et al., 2007). Socialization was defined as the ability to demonstrate skills necessary to engage in social interaction and the frequency of skills demonstrated that individuals with ASD were engaging in (Mackay et al., 2007).

There were 46 high functioning adolescents and children with Autism Spectrum Disorder in this study (Mackay et al., 2007). There were 38 boys and 8 girls between the ages of 6 and 16 years of age (Mackay et al., 2007). Each participant was put into one of six intervention groups (Mackay et al., 2007). The groups were formed on the basis of age, availability during the 12-16 weeks that the groups were meeting and geographical location (Mackay et al., 2007). The primary school-aged groups contained children between the ages of six to 11 years old (Mackay et al., 2007). The secondary school-aged groups included children that were between the ages of 12 to 16 years old (Mackay et al., 2007).

The type of intervention that was used in this study was a group work intervention that focused on instructing friendship skills, social skills that are essential for conversation and skills to promote reciprocal communication as well as social and emotional comprehension of the conversation (Mackay et al., 2007). In these group work interventions, activities including role play, group discussion, independent choice and games were used to instruct these skills (Mackay et al., 2007). Role play is a form of active rehearsal as the children acted out the skills that they were focused on learning (Mackay et al., 2007). All six of the intervention groups met once per week for at least an hour long session for 12-16 weeks (Mackay, Knott & Dunlop, 2007).

From this study, it was found that increases in social skills and effective social communication can occur through the use of a group work intervention (Mackay et al., 2007). This was measured through the use of questionnaires including the Social Competence with Peers Questionnaire – Parents (SCPQ-P), the Spence Social Skills Questionnaire – Parents (SSQ-P), the Social Competence with Peers Questionnaire – Pupils (SCPQ-PU) and the Social Skills Questionnaire – Pupils (SSQ-PU) (Mackay et al., 2007). These were completed at pre-test and post-test by the parents and the participants – where possible (Mackay et al., 2007). The same items were evaluated on these questionnaires (Mackay et al., 2007). The population of individuals with Autism Spectrum Disorder showed and maintained the changes that were focused on in the sessions during intervention (Mackay et al., 2007).

Increased levels of social competence and social skills were stated to have occurred by both participants and parents (Mackay et al., 2007). A limitation that was recognized in this
study was that there were issues with establishing generalization (Mackay et al., 2007). The skills that had been taught in the sessions were not shown in isolation from the daily environment but were shown in the home and in the community (Mackay et al., 2007).

Improving the social interactions of an individual living with various disabilities living in a group home was the objective of another study by Gardner and Heward (1991).

In this study, a 43-year-old man named Jack that had developmental delays was instructed in appropriate social skills so that he could interact in a more suitable way (Gardner & Heward, 1991). Jack was taught appropriate behaviours for social interaction through the modelling of each behaviour and by being given opportunities to practice and engage in role play for every behaviour (Gardner & Heward, 1991).

The goals of the intervention were getting him to initiate a conversation, not using overly repetitive language when speaking and being aware of where his hands are when talking to others so that hands remain at the individual’s side (Gardner & Heward, 1991). These goals were measured through the use of frequency (Gardner & Heward, 1991). Baseline consisted of the staff socializing with Jack in a typical manner (Gardner & Heward, 1991). The next phase of treatment consisted of a ten minute period of instruction that happened before every observation session (Gardner & Heward, 1991). After this, token reinforcement was implemented (Gardner & Heward, 1991). A token was given to Jack from staff accompanied by social praise when the target behaviour(s) were shown for the session (Gardner & Heward, 1991). When an unacceptable behaviour was shown by Jack, a token was removed and corrective feedback was provided (Gardner & Heward, 1991). When Jack received a token in the form of a poker chip, he put it into a cup and when a token was lost because of inappropriate behaviour he gained a token from the cup and handed it to a staff member (Gardner & Heward, 1991). Three tokens were placed in a cup when each session began (Gardner & Heward, 1991). When the session had finished, the experimenter and Jack placed the tokens into a clear bottle that had a series of lines on it that were horizontal (Gardner & Heward, 1991). When a horizontal line was reached by the amount of tokens in the bottle, Jack received a reward (Gardner & Heward, 1991). He was able to choose from listening to records, going for a car ride, going out to eat ice cream or tossing a ball around (Gardner & Heward, 1991). The final phase before follow up included going back to a condition in which only feedback and instruction took place (Gardner & Heward, 1991). The follow-up portion of this study included a series of different, follow-up observations that started two months after intervention had ended (Gardner & Heward, 1991).

This study found that this individual with behavioural issues and developmental delays learned to increase the amount of their social interactions with family and friends in his life and who are typically in his environment (Gardner & Heward, 1991). A limitation of this study is that it is unknown whether Jack’s behaviour was generalized independently or by the new staff through them being trained by older staff members (Gardner & Heward, 1991).

The studies reviewed above support the use of active rehearsal through the use of Social Stories as an appropriate intervention to improve social skills among various populations such as with individuals with Autism Spectrum Disorder (Scattone et al., 2006). An increase in the amount of appropriate social interactions was the result (Scattone et al., 2006). Other evidence suggested that individuals with developmental delays can learn to initiate conversations to increase their levels of social interactions using active rehearsal and this is enhanced by working with individuals that are significant in their lives (Gardner & Heward, 1991). Active rehearsal through the use of personal narratives allowed clients with an intellectual disability to engage in conversations with others and to feel empowered (Van Nijatten & Heestermans, 2012). Increases in social skills and effective social communication also resulted and were maintained
using group work intervention with individuals with Autism Spectrum Disorder.

This literature review indicates that reinforcement used on its own and accompanied by active rehearsal, role play, instructions, performance feedback, and modelling may be helpful and effective in increasing social skills in adults with developmental delays and autism.

Visual prompts have been successful in increasing communication in individuals with developmental disabilities (Sigafoos et al., 2009). Verbal prompts showed instantaneous and lasting improvements in the performance of necessary skills for conversations in individuals with autism and intellectual disabilities (Allen et al., 2012).

Active rehearsal through the use of Social Stories, personal narratives and a group-work intervention was shown to increase social interaction in individuals with autism, developmental delays and intellectual disabilities.

Based on the above studies, in the present study it was hypothesized that the use of positive reinforcement, prompts and active rehearsal would lead to increases in the number of social skills displayed by adults with both intellectual and developmental disabilities.
Chapter III: Method

Participants

The three participants were between the ages of 17 and 40 years old. Two of the participants were male and one participant was female. Participants’ disabilities were both of the intellectual and developmental type including autism, Down syndrome, and developmental delays. All participants had a comorbid mental illness. Adults that did not have an officially diagnosed intellectual or developmental disability or an accompanying comorbid mental illness were not considered for this study. Participants were referred by the community living agency. Consent was obtained and documented on consent forms that were provided to the participants (Appendix A). It was made clear that participation was voluntary. It was also stated directly that withdrawal could take place at any point without negative consequence. All participants were considered competent to provide consent. This research study was approved by the St. Lawrence College Research Ethics Board.

Study Design

This study consisted of a multiple probe design with a pre-test and post-test. The independent variable was the behavioural intervention, which included the positive reinforcement, active rehearsal and prompts to promote social skill use in the participants. The dependent variables were the participant’s self-report ability to interact socially as measured by the Social Skills Questionnaire and a post-test functional assessment involving a repeated observation period reflective of the baseline observation period of social skills demonstration. Positive reinforcement was regarded as the presentation of a positive stimulus such as a star sticker after the occurrence of a desired behaviour intended to increase future occurrences of the desired behaviour.

Active rehearsal was defined as the use of scripts to prompt and encourage communication of participants to other clients (Science of Behaviour, n.d.).

Prompts were defined as the use of spoken words to encourage and remind clients of appropriate behaviour to display (Science of Behaviour, n.d.).

Social skills were defined as verbally speaking to other people, maintaining eye contact with other people, maintaining an appropriate distance when interacting with other people, acknowledging other people when appropriate and using appropriate tone and voice and facial expressions. Maintaining eye contact was defined as looking other individuals in the eyes when speaking to them for at least five seconds. Maintaining an appropriate distance when interacting with other people was defined as staying at least 50 centimeters away from another individual. Acknowledging other people when appropriate and using appropriate tone and voice and facial expressions was defined as verbally stating a greeting such as “Hi.,” “How are you?”, and “How’s your day going?” in a moderate tone of voice with either no expression on one’s face or a smile on one’s face.

Setting and apparatus

A community living program was the setting for this research project. Various instruments including a pen, scripts from different developmentally inclusive sources including different questionnaires, visual scripts for the development of social skills and any other materials related to the scenarios were utilized. The engagement and presence of the participants was also required.

Measures

Participants’ self-reported information regarding their ability to interact socially in different situations was collected using the Social Skills Questionnaire-2008 (Adults ASD) (Appendix B) (2015, September 15) Retrieved from http://www.bridgewayalabama.com. The
INCREASING SOCIAL SKILLS

A functional assessment in the form of 10 minute observation periods across 60 minutes in total between 11:30 am and 12:30 pm over seven days of observation (Appendix C) was employed as baseline and then post-intervention to evaluate participants’ demonstration of social skills.

As noted, the program was implemented for five weeks. The first week consisted of the collection of baseline data (Appendix D). This data from the calculated descriptive statistics for baseline can be found in Tables 1, 2 and 3 (Appendix D). Active rehearsal and modelling were introduced next in the second week. The active rehearsal scripts (Appendix E) were demonstrated to the participants in the form of modelling and performance of these scripts was promoted. Fading of active rehearsal occurred after it was introduced in the second week. Clients were instructed for five days at a time. For the third week, active rehearsal, prompts and reinforcement were introduced. Active rehearsal was introduced first followed by prompts. Verbal prompts in the form of “Do you want to go see what ________ is doing?” “Do you want to go say hello to ________?”, and “Did the Blue Jays win last night?” were used when required. Prompts were provided every time to begin. The use of prompts was then increased to being provided every five times. Followed by being provided every ten times. This was done so that the use of prompts was naturally faded. These schedules were chosen because they were regarded as effective and easy to implement. Pats on the back and high fives were provided on an FR-2 ratio when social skills were demonstrated by the participants. These forms of physical reinforcement were then increased to an FR-5 ratio. Finally, an FR-10 schedule of reinforcement was utilized. These forms of physical reinforcement were increased on these schedules of reinforcement so that this reinforcement was faded naturally. Again, these schedules were chosen because they were easy to implement and effective. Social attention given by the researcher utilized as positive reinforcement was delivered at every occurrence of a social skill by the participant. Examples of social attention were the researcher turning his/her head towards the client and maintaining eye contact with the client. The delivery of tangibles was also incorporated. An FR-1 schedule of reinforcement was used. This schedule was then faded to an FR-3 schedule of reinforcement. Finally, an FR-5 schedule of reinforcement was used. When this was reached, it was assumed that the behaviour had generalized. These schedules were chosen because social attention and the delivery of tangibles are easy to provide and the schedules of fading were suitable and effective. In the fourth week, fading, prompts, reinforcement, modelling and active rehearsal were implemented. The use of touch as a prompt was faded first. Then, it was followed by verbal prompts including “Do you want to go see what ________ is doing?” “Do you want to go say hello to ________?”, and “Did the Blue Jays win last night?”. Positive reinforcement that was used to maintain the behaviour on an ongoing basis was faded next. Finally, active rehearsal was then faded which consisted of the reading of a designed script.

A most to least intrusive sequence of fading was used for prompting. Prompts were implemented every time the behaviour was not displayed. This was then faded by the prompts being delivered after five times of the behaviour not being displayed because this was a realistic second step to be taken. This finally ended by prompts being delivered after ten times of the behaviour not being displayed. If the use of prompts was not responded to, then the use of reinforcement was reduced according to what was regarded as necessary. This sequence was chosen because it allowed fading to happen naturally and these were realistic increments to use in the fading process.

Stickers and edibles that could be given right away were provided as positive reinforcement when a social skill was demonstrated. Generalization of skill was noted if there
was evidence that it occurred. For example, if another client of the program approached a participant to have a conversation and the participant engaged in conversation then generalization was considered to have occurred. The schedules for positive reinforcement that were used were an FR-2 schedule, then when that was attained, an FR-5 schedule and finally an FR-10 schedule. These schedules were chosen because they are a natural sequence for fading to occur. Active rehearsal in the form of a script was implemented daily. This was then faded after its use during the week.

The fifth week included active rehearsal. This also included changing the subject design. Therefore, if a client of the program spoke to the participant and asked how the game was and the participant was able to respond to this question then social reciprocity was shown. Social reciprocity is regarded as turn taking in interactions between two individuals. It is displayed when the individuals are aware of when it is appropriate for them to speak and when they should listen.

**Analyses**

The current study used a multiple probe design with a pre-test and post-test. Baseline observation in the form of a functional assessment was part of the pre-test as was the completion of the Social Skills Questionnaire. At post-intervention, the functional assessment and Social Skills Questionnaire were repeated (Appendix F).

Tables displaying the frequency of social interactions at pre and post intervention were visually analyzed to determine if more social skills were demonstrated at post-intervention compared to baseline.

An increase in frequency of social interactions from pre to post-intervention will be regarded as evidence that the participants had learned new social skills.
**Chapter IV: Results**

Baseline data (Appendix G) were collected on the three potential subjects to determine if social skills deficits was an appropriate target area. Data from the calculated descriptive statistics for baseline can be found in Table 4 (Appendix G). For the project, social skills were defined as verbally speaking to other people, maintaining eye contact with other people, knowing what is an appropriate distance to maintain when interacting with other people, acknowledging other people and using appropriate tone of voice and facial gestures. For the baseline data, these skills were observed for the three subjects over six ten minute intervals (a total of one hour) across seven days. An X represented the occurrence of a social skill during the 10 minute interval and an O represented that no social skills were displayed during the 10 minute interval. Partial interval recording was used. On average, participants demonstrated social skills during one 10-minute interval during a one-hour observation period across the seven days. The range was zero to 3 intervals, although only one subject demonstrated social skills 3 intervals within the 1 hour observation period. This may not accurately represent social skill level however, as the data does not reflect frequency of social skill demonstration in each 10-minute interval. This data does suggest that social skills were rarely displayed by the participants independently.

Table 1. Descriptive Statistics: Mean number of intervals during 17 one-hour observed intervals across 25 days pre and post-intervention that participants demonstrated at least one social skill

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>Pre</th>
<th>M.D. Weeks</th>
<th>M.N. Weeks</th>
<th>T. Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (in percentages)</td>
<td>19</td>
<td>43 63 63 60 14</td>
<td>50 63 60 63 23</td>
<td>50 30 47 47</td>
</tr>
<tr>
<td>Median (in percentages)</td>
<td>17</td>
<td>50 67 67 67 17</td>
<td>50 67 67 67 17</td>
<td>33 50 50 50</td>
</tr>
<tr>
<td>SD</td>
<td>0.90 0.55 0.45 0.45 0.55 0.79 0.45 0.55 0.45 0.90</td>
<td>0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Effect size was also calculated through the use of PND. The effect size for M.D. was 67%, for T. was 44% and for M.N. was 37%. This was regarded as minimally effective for M.D. and ineffective for T. and M.N. This can be viewed through the visual analyses in (Appendix H). Data regarding the amount of intervals in which social skills were displayed during one hour by the participants can be found in Figures 4, 5 and 6 (Appendix H).

From week 1 (Appendix I) to week 2 (Appendix J) the mean increased significantly by 20% for participant M.D. Data from the calculated descriptive statistics for week 1 of intervention can be found in Table 5 (Appendix I) and data from the calculated descriptive statistics for week 2 of intervention can be found in Table 6 (Appendix J). From week 2 to week 3 (Appendix K) the mean remained the same for participant M.D. From week 3 to week 4 (Appendix L) the mean decreased by 3%. Data from the calculated descriptive statistics for week 3 of intervention can be found in Table 7 (Appendix K) and data from the calculated descriptive statistics for week 4 of intervention can be found in Table 8 (Appendix L). For participant M.N., the mean increased significantly by 13% from week 1 to week 2, decreased by 3% from week 2 to week 3, and finally increased by 3% from week 3 to week 4. For participant T., the mean decreased by 20% from week 2 to week 1, increased by 17% from week 2 to week 3 and remained the same from week 3 to week 4.

From week 1 to week 2, the median increased by 17% for participant M.D., remained the same from week 2 to week 3 and also remained the same from week 3 to week 4. For participant M.N., the median increased by 17% from week 1 to week 2, remained the same from week 2 to week 3 and also remained the same from week 3 to week 4. For participant T., the median
increased by 17% from week 1 to week 2, remained the same from week 2 to week 3 and also remained the same from week 3 to week 4.

The standard deviation for participant M.D. decreased by 0.10 from week 1 to week 2, remained the same from week 2 to week 3 and increased by 0.10 from week 3 to week 4. For participant M.N., the standard deviation increased by 0.45 from week 1 to week 2, increased by 0.10 from week 2 to week 3 and decreased by 0.10 from week 3 to week 4. For participant T., the standard deviation remained the same from week 1 to week 2, week 2 to week 3 and week 3 to week 4.

The social skills questionnaire that was utilized as a part of the functional assessment required the three participants to rate themselves as using social skills “always”, “usually”, “sometimes”, “rarely”, or “never”. As these questionnaires were a part of the functional assessment, they assisted in determining where the participants’ social skills deficits were. Participant M.D. rated himself as always, usually or sometimes showing social skills in response to 47% of questions. Similar to M.D., participant T. rated herself as showing social skills always, usually or sometimes to 47% of the questions. Participant M.N. stated that he displayed social skills always, usually or sometimes to 41% of the questions. At post-test participants reported increases in the social skills that they were using as compared to pre-intervention on the social skills questionnaire.

The hypotheses – increases in the percentages stated by participants when stating (always, usually, or sometimes) at post test will indicate that the intervention was successful in increasing social skills in these adults with intellectual and developmental disabilities were supported as increases were shown from the pre-intervention to post-intervention in number of observation intervals during which at least one social skill was demonstrated. Participant M.D. demonstrated an increase of 2.5 intervals from pre-intervention to post-intervention during which at least one social skill was demonstrated. Participant T. showed an increase of 1.6 intervals during which at least one social skill was demonstrated from pre-intervention to post-intervention and participant M.N. showed an increase of 2.6 intervals during which at least one social skill was demonstrated from pre-intervention to post-intervention. The participants also self-reported using social skills more frequently on the Social Skills Questionnaire at post-intervention.

Participant M.D. stated that he used social skills always, usually, or sometimes to 88% of the questions. Participant T. indicated that she used social skills always, usually, or sometimes to 94% of the questions and participant M.N. indicated that he used social skills always, usually, or sometimes to 88% of the questions. These results can be observed in Appendix J. Increases of 87% were noted for M.D., 88% for M.N., and 100% for T. from pre to post-testing.
The following graphs – Figures 1, 2 and 3 (Appendix M) show the number of intervals during which social skills were displayed by the participants involved during baseline and intervention.

![Graph showing the number of intervals during which social skills were displayed by M.D. during baseline and intervention.](image_url)

Figure 1. Number of Intervals During Which Social Skills were Displayed by M.D. During Baseline and Intervention
Figure 2. Number of Intervals During Which Social Skills were Displayed by T. During Baseline and Intervention
Figure 3. Number of Intervals During Which Social Skills were Displayed by M.N. During Baseline and Intervention
Chapter V: Conclusion/Discussion

The results of the intervention were that increases were found in the number of intervals during which social skills were displayed between pre-intervention and post-intervention. The application of the techniques of positive reinforcement, active rehearsal and prompting were effective in positively affecting the number of social skills displayed from pre-intervention to post-intervention. The three participants increased the amount of social skills that they were displaying by at least two intervals after post-intervention with the use of these techniques. Social skills such as initiating conversations, being able to maintain a conversation, asking questions, requesting assistance when needed or not interrupting a conversation were effectively taught to these individuals. This indicates that people with disabilities can learn new skills using the above noted techniques. This is very beneficial as the attainment of skills is essential in numerous areas in life for individuals in order to adapt and function. This gaining of skills should allow these individuals to now be able to engage with others more. It is hoped that the increase in social skills will allow these individuals to become more involved in their community as they are able to socialize more and in different environments. It is further hoped the participants can also use these new skills for advocating for what they desire in their lives. This includes being able to state their opinions and preferences. As such social inclusion may also have been enhanced.

The study supports that these techniques can be used with this population. Positive reinforcement can be used to increase and/or maintain a desired behaviour whenever it is believed to be beneficial. Active rehearsal can be regarded as a way in which social skills can be modelled, taught, and increased. The use of prompting can be an effective way to increase the number of times these individuals display a behaviour / skill. Future research should determine if these techniques can be applied in other environments and in different ways.

A broader impact of the present study is providing evidence that individuals with developmental delays are capable of a lot more than is typically expected of them. With improved skills patients may be able to advocate for themselves, and to do more for themselves, etc. Professionals using these techniques to increase social skills among this group may be better prepared to step back when it is necessary and to allow these individuals to express themselves more socially. This could change the ways in which a lot of agencies currently function. This is also regarded as ways in which more agencies and professionals should be operating. Some agencies and professionals have already begun to attempt to function more in these ways.

Existing Literature Utilized

The literature on the use of positive reinforcement, prompting and active rehearsal for increasing social skills in individuals with intellectual and developmental disabilities were reviewed. Previous studies looked at a range of populations from the child population to the adult population. The present results were similar to the majority of studies reviewed, although the population in the present study was slightly different. Gonzalez, Lopez, and Kamps (1997) studied children with autism regarding the use of positive reinforcement. It was noted that increased interaction time was shown by the children. These children were shown to initiate conversation, reply, greet other people, and follow instructions. Schmidt, Luiselli, Rue, and Whalley, (2015) showed in their study that the combination of graduated exposure and positive reinforcement was successful in eliminating activity and setting avoidance in an individual with autism (Schmidt et al., 2015). In another study that Senatore et al., (1982) conducted based on the use of active rehearsal used with reinforcement, role-play, instructions, performance feedback, and modelling. It was shown that increases in social skills in adults with developmental delays occurred. Sigafoos et al., (2009) performed a study that involved the use of
prompts, graduated guidance, and modelling that was successful in increasing social skills in the form of requests in a teenage boy with a developmental disability. In another study based on the use of prompts in the form of audio-cuing by Allen, Burke, Howard, Wallace, and Bowen (2012), skills such as initiating conversation with customers and producing appropriate responses in conversations were taught to adolescents with both intellectual and Autism Spectrum Disorders. Through these interventions, these skills were shown to have increased and these increases were shown to have lasted as well. In a final study involving the use of prompts by Gower (2005), a four year old boy with a developmental disability in the form of autism was taught verbal and physical sharing with peers in a preschool classroom. Verbal sharing was shown to have increased through the use of prompts. Van Nijnatten and Heestermans, (2012) concluded that even if limitations in communication were present, clients that have an intellectual disability were able to engage in conversations with others and be empowered through the use of personal narratives and active rehearsal (Van Nijnatten & Heestermans, 2012). In a study by Scattone et al. (2006), active rehearsal was shown to have increased social interactions in Drew an adolescent with Autism Spectrum Disorder. Mackay et al. (2007) completed another study that utilized this technique as well. It was found that increases in social skills and effective social communication occurred through the use of a group work intervention for children and adolescents with various levels of autism spectrum disorder. A similar study by Gardner and Heward (1991) used the technique of active rehearsal and it was found that individuals with behavioural issues and developmental delays increased the number of appropriate social skills they used with individuals that are significant in their lives and whom were typically in their environment.

A study that was not in line with the results was a study that used the combination of graduated exposure and positive reinforcement. This study by Schmidt et al. (2013) was successful in eliminating activity and setting avoidance in an individual with autism (Schmidt et al. 2013).

This thesis is important in the context of the current literature as there is currently not very much literature on the use of all of these techniques with the adult developmentally delayed population. It is clear that more information is required on utilizing positive reinforcement, prompting, and active rehearsal to increase social skills in adults with intellectual and developmental disabilities.

Limitations, Challenges, and/or Ethical Issues Encountered

The limitations, challenges, and/or ethical issues that were encountered in creating this thesis were obtaining consent forms from the participants, recording the data of three participants at once (issues with collecting data from clients consistently), lack of continuous attendance of the participants and time constraints given the limited placement time. Obtaining consent forms was a challenge because I had to redo them after having completed them a first time as the agency did not want the full names of the participants to be used. Initials were solely utilized as identifying information of the participants on the revised consent forms. Due to the lack of continuous attendance of the participants there were some days in which not all of the participants were present so I had to wait for them all to be present. Fortunately, this was a minor limitation. There was not a surplus of days in which not all of the participants were present. Small sample size limited the findings because having only three participants doesn’t show that the findings were consistent over a larger population but is an indicator. Another limitation was that the findings were not generalized to other settings.

The strengths of the study were that positive results were obtained. This shows that the use of positive reinforcement, active rehearsal, and prompting were effective in increasing social
skills in adults with intellectual and developmental disabilities. All of the participants showed increases in the amount of social skills that they were displaying.

**Implications to the Behavioural Psychology Field**

Many people who are affected by developmental delays and intellectual disabilities encounter challenges in their daily lives due to not possessing the ability to interact in socially appropriate ways. This thesis has suggested that the techniques of positive reinforcement, active rehearsal and prompting may be beneficial in the development of social skills among this population.

**Recommendations for Further Research**

While there are programs that exist to assist individuals of this population with the development of their social skills, there is still a lot of research that could be done to improve the quality of life that these individuals are experiencing in these daily programs. More programs should be developed to teach and assist individuals with intellectual and developmental disabilities with gaining appropriate social skills through the use of these techniques and other techniques. It would be interesting to note if a similar design that involved the use of more active rehearsal would cause more increases in the social skills displayed by these individuals. Another recommendation would be to study all of these techniques individually to see if any one of them has more of an impact. The performance of studies looking at different contexts and settings would also be interesting to conduct.

**A Multilevel Systems Perspective Including Client, Program, Organization and Society**

**Client Level**

The activities that were implemented at Community Options were designed specifically to enhance the knowledge, quality of life, and abilities of the clients involved. With the implementation of these programs, there were some issues that occurred at the client level including clients not always being receptive to the behavioural procedures that were trying to be implemented, and the client only being present for some days of the week every week.

**Program Level**

Various program level challenges were experienced while being on placement including having issues starting my program due to delays in ethics approval and having difficulty collecting data consistently due to having to monitor numerous clients while collecting data.

**Organizational Level**

Organizational challenges encountered on placement included the large amount of individuals that were present at the agency to work with the clients. Due to the fact that it was a multidisciplinary team that involved placement students and staff this made it difficult because so many individuals were involved with the clients and were working across-purposes.

**Societal Level**

Attempting to complete programs with this population can be difficult because there are individuals in society that still have a very negative view of individuals with developmental and intellectual disabilities. Some people do not believe that these individuals should be able to function independently, or that they are as capable as they are. This is a very negative judgement.

It was wonderful being able to work with this population and gain first-hand experience on the fact that they are capable and very intelligent.
References


Appendix A

Consent Form

**Project title:** Using Positive Reinforcement, Prompting and Active Rehearsal to Increase Social Skills Use in Adults with Intellectual and Developmental Disabilities

**Principal Investigator:** Victoria Smith

**Name of supervisor:** Fatima McArthur, Yolanda Fernandez

**Name of Institution:** St. Lawrence College

**Name of institution/agency:** Community Living

**Invitation**

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

**Why is this research study being done?**

This research study is being done to determine whether the use of positive reinforcement, prompting and something called active rehearsal (which is practising skills) will help you use social skills more effectively. Positive reinforcement involves
giving you something when you have demonstrated a social skill so you know what kind of things and behaviours are appropriate to do again. Prompting includes saying something that reminds you what to do and active rehearsal is practising skills. A questionnaire will be used before and after the intervention to see how often you think you use social skills. The results will be compared. The goal is to see if this intervention will help you increase your social skills.

**What will you need to do if you take part?**

If you choose to take part in this study you will be asked to answer questions on the Social Skills Questionnaire – 2008 (Adults ASD). I can read the questions to you if that would help. The questionnaire will be done in one day. It will take approximately 30 minutes to complete and will be completed on the Monday of the first week of the project. The intervention will be completed at the community living program every day for five weeks. The intervention will take place between 11:30 am and 12:30 pm at the community living program. During the intervention, you will be asked to try to communicate more with other clients by talking to them, waving to them or using different actions. You will be rewarded through hive fives, stickers, edibles, and awards. After the intervention, you will be asked to answer the questions of the same questionnaire. The questionnaire will be performed twice for each participant so six times in total. This will be done at the community living program. The sessions will be run by myself and my supervisor. For the active rehearsals, you will be shown a script and asked to read from it or I will read a script to you and ask you to repeat it.
What are the potential benefits of taking part?

Benefits of taking part in this research study include that you may feel you can use social skills more easily and feel better in social situations.

What are the potential benefits of this research study to others?

The potential benefits of this research study to others may include information from this project could be used to improve the lives of other individuals like yourself in the future.

What are the potential disadvantages or risks of taking part?

Risks from taking part in this research study are minimal but may include that you do not see any changes or you may feel upset or frustrated during the intervention.

What happens if something goes wrong?

You may talk to me, or the supervisor and we will assist you in whatever ways we can. We want everyone to feel comfortable and not upset.

Will my information you collect from me in this project be kept private?

Attempts will be made to keep any of your information completely confidential unless required by law. Your information will be coded with a number on the questionnaires so that your name is not on the questionnaire. The consent forms and all research information will be kept in a locked filing cabinet at Community Living for 10 years. After this point in time, the information will be destroyed. Your name or other identification will not be on any reports, or publications of any type resulting from this project.
**Do you have to take part?**

Taking part is completely your choice and voluntary. If you do choose to participate, you will be asked to read and sign this consent form. If you choose to take part in this research project, you still have the ability to stop at any point, without providing reason and without any penalty, or negative effect. If you decide to not participate any more, please inform me or my supervisor. If you have completed some of the process and do not wish for your information to be used you can state this and your information will be destroyed. Services at Community Living will still be available to you have withdrawn.

**Contact for further information**

This project has been reviewed by the Research Ethics Board at St. Lawrence College and at Community Living’s REB. The project will be developed under the supervision of - Dr. Yolanda Fernandez, my supervisor from St. Lawrence College. I appreciate your cooperation and if you have any additional questions or concerns, feel free to ask me, Victoria Smith (vsmith15@student.sl.on.ca). You can also contact my College Supervisor Yolanda Fernandez (Yolanda.fernandez@csc-scc.gc.ca) or you may also contact the St. Lawrence College Research Ethics Board at reb@sl.on.ca.

**Consent**

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

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

Participant Name __________________________ Signature of Participant _______________ Date _______________________

Victoria Smith

Student Printed Name __________________________ Signature of Student _______________ Date _______________________
Appendix B

Pre-test Social Skills Questionnaires

Social Skills Questionnaire – 2008 (Adults ASD)

Date of Completion: Sept. 11, 2015

Initials M.D.  Gender (Circle One) Male  Current Age 36

Have you ever gotten mad and gotten in a fight? Yes No If you answered yes, please explain: In high school. His old best friend’s brother tried to beat him up and his brother had to jump in the middle of the fight to save him. He would say I’m best friend’s with your brother. M.’s brother then jumped in and they got sent to the principal’s office.

Do you usually keep your bedroom clean and organized? Yes

Do you lose or misplace things often? Not very often.

Social Assessment What do you like to do in your free time?

1. Watching movies
2. Playing sports- bochee ball, curling, baseball
3. Bowling
4. Playing on Wi
5. Exercising
6. Hanging out with friends

Do you feel comfortable looking people in the eyes? Always

Do you say hello to friends and adults that you know? Rarely

Do you say hello to friends and adults that you don’t know? Never

Do you tell people your name when you meet them? Usually

Do you stand up for yourself when it comes to things that you’re good at? Rarely
INCREASING SOCIAL SKILLS

Do you stand up for yourself if you’re not good at something? Rarely

Do you compromise in situations that need it to solve problems when in a group of people?
Usually

Do you have at least one friend that you have things in common with and can have good talks with? Yes

Can you talk about something that isn’t very interesting to you? Rarely

Do you ask questions to people you don’t know very well to see if you like the same things?
 Usually

Do you try to be happy even when losing or not doing well at something? Rarely

Do you ask friends to hang out? Rarely

If you interrupt someone do you say “excuse me” or apologize for interrupting? Always

Do you stay on topic when talking with people? Usually

Do you try to help people if they are hurt or not feeling well? Rarely

Do you say things like (wow, cool) to show someone that you’re interested in what they’re saying? Always

Do you let other people have a turn with things? Rarely

Can you explain directions to somewhere, naming the main point? Sometimes
Social Skills Questionnaire – 2008 (Adults ASD)

Date of Completion: Sept. 11, 2015

Initials T. Gender (Circle One) Male  Current Age 36

Have you ever gotten mad and gotten in a fight? No.

Do you usually keep your bedroom clean and organized? Yes.

Do you lose or misplace things often? Not very often. (No)

Social Assessment What do you like to do in your free time?

1. Watching baseball, hockey, Wheel Of Fortune
2. Swimming, Hockey, Skating
3. Reading books that have language that is easy to understand.
4. Walking
5. Playing cards

Do you feel comfortable looking people in the eyes? Always

Do you say hello to friends and adults that you know? Rarely

Do you say hello to friends and adults that you don’t know? Never

Do you tell people your name when you meet them? Rarely

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Do you have at least one friend that you have things in common with and can have good talks with? Yes
INCREASING SOCIAL SKILLS

Can you talk about something that isn’t very interesting to you? Rarely

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Do you say things like (wow, cool) to show someone that you’re interested in what they’re saying? Always

Do you let other people have a turn with things? Rarely

Can you explain directions to somewhere, naming the main point? Never.
Social Skills Questionnaire – 2008 (Adults ASD)

Date of Completion: Sept. 11, 2015

Initials M.N. Gender (Circle One) Male Current Age 21


Do you usually keep your bedroom clean and organized? No.

Do you lose or misplace things often? Yes.

Social Assessment What do you like to do in your free time?

1. Going out in the back yard and playing
2. Watching sports – hockey and baseball
3. Going out to places like Community Centres
4. Likes learning about autoshop related things
5. Singing

Do you feel comfortable looking people in the eyes? Always

Do you say hello to friends and adults that you know? Sometimes

Do you say hello to friends and adults that you don’t know? Rarely

Do you tell people your name when you meet them? Rarely

Do you stand up for yourself when it comes to things that you’re good at? Always

Do you stand up for yourself if you’re not good at something? Never
Do you compromise in situations that need it to solve problems when in a group of people?
Rarely

Do you have at least one friend that you have things in common with and can have good talks with? Yes

Can you talk about something that isn’t very interesting to you? Rarely

Do you ask questions to people you don’t know very well to see if you like the same things? Never

Do you try to be happy even when losing or not doing well at something? Usually

Do you ask friends to hang out? Rarely

If you interrupt someone do you say “excuse me” or apologize for interrupting? Always

Do you stay on topic when talking with people? Rarely

Do you try to help people if they are hurt or not feeling well? Usually

Do you say things like (wow, cool) to show someone that you’re interested in what they’re saying? Rarely

Do you let other people have a turn with things? Rarely

Can you explain directions to somewhere, naming the main point? Usually
Appendix C

Table of Pre-test and Post-test Data

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Appendix D

Tables of Baseline Data of Social Skills

Social skills demonstrated by T.

O = Social skills were displayed  X = Social skills were not displayed

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Social skills demonstrated by M.D.

O = Social skills were displayed  X = Social skills were not displayed

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Average of Days  33%
**INCREASING SOCIAL SKILLS**

Social skills demonstrated by M.N.

O = Social skills were displayed  X = Social skills were not displayed

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Appendix E: Active Rehearsal Script

TARGET: TEXAS GUIDE FOR EFFECTIVE TEACHING SOCIAL NARRATIVES

BRIEF INTRODUCTION Because of their lack of understanding of social cues or rules, people with autism (AU) often face challenges when having to respond to social behavior and engage in social interactions. Social narratives can teach new social skills and encourage individuals to regulate their behavior through relatively short sentences or phrases. In this section, three types of social narratives are introduced: Social Stories™, Power Card strategy, and social scripts.

DESCRIPTION Social narratives can be used in various ways. Educators, para-educators, parents, or other professionals can write social narratives for various situations. Based on the individual’s needs and functioning levels in an academic or non-academic setting, social narratives can guide the individual toward appropriate behaviors or responses.

Even though there are special steps and rules to be developed for each type of social narrative, the following guidelines are generally considered appropriate for creating social narratives:

1. Identify the social situation or setting to be taught.

2. Identify the target behavior to teach and define it operationally for data collection.

3. Collect data to decide the baseline of the target behavior.

4. Write a social narrative based on the individual’s needs and functioning levels. Decide the
length of the narrative, including the number of sentences, phrases, level of vocabulary, and so on.

5. Use visual cues, including pictures, photos, or symbols, concerning the individual’s interests and levels.

6. Read the social narrative to the individual and model the desired behavior.

7. Collect data on the target behavior.

Participant: Hi! How are you doing? Wait for reply. Respond to how the person is feeling. If they are good for example say I am glad to hear that you are doing well.

Participant: What did you do this morning? Wait for reply.

Participant: Then, say oh that’s interesting. Wait to see if they ask you what you did. If they don’t, then tell them about what you did. For example, you could say I was at work and did _________________ today.

Participant: So, what did you have for lunch today? Wait for reply. See if they ask you what you had for lunch.

Participant: If they don’t ask you then tell them what you had.

Participant: Did you watch the game last night? Wait for reply. Tell them if you did too.

Participant: Did you think it was a good game? Wait for their reply. See if they ask you if you liked it. If they don’t ask you if you liked it, tell them if you liked it.
Participant: What are you doing this afternoon? Wait for their reply. See if they ask you what you’re going to do.
Appendix F: Post-test Questionnaires

Social Skills Questionnaire – 2008 (Adults ASD)

Date of Completion: Nov. 16, 2015

Initials M.D. Gender (Circle One) Male Current Age 36

Have you ever gotten mad and gotten in a fight? Yes.

Do you usually keep your bedroom clean and organized? Yes

Do you lose or misplace things often? Not very often.

Social Assessment What do you like to do in your free time?

7. Watching movies

8. Playing sports- bochee ball, curling, baseball

9. Bowling

10. Playing on Wii

11. Exercising

12. Hanging out with friends

Do you feel comfortable looking people in the eyes? Always

Do you say hello to friends and adults that you know? Always

Do you say hello to friends and adults that you don’t know? Never

Do you tell people your name when you meet them? Usually

Do you stand up for yourself when it comes to things that you’re good at? Always

Do you stand up for yourself if you’re not good at something? Always
Do you compromise in situations that need it to solve problems when in a group of people?
Usually

Do you have at least one friend that you have things in common with and can have good talks with? Yes

Can you talk about something that isn’t very interesting to you? Rarely

Do you ask questions to people you don’t know very well to see if you like the same things?
Usually

Do you try to be happy even when losing or not doing well at something? Usually

Do you ask friends to hang out? Usually

If you interrupt someone do you say “excuse me” or apologize for interrupting? Always

Do you stay on topic when talking with people? Usually

Do you try to help people if they are hurt or not feeling well? Always

Do you say things like (wow, cool) to show someone that you’re interested in what they’re saying? Always

Do you let other people have a turn with things? Always

Can you explain directions to somewhere, naming the main point? Sometimes
Social Skills Questionnaire – 2008 (Adults ASD)

Date of Completion: Nov. 16, 2015

Initials: T., Gender (Circle One) Male  Current Age 36

Have you ever gotten mad and gotten in a fight? No.

Do you usually keep your bedroom clean and organized? Yes.

Do you lose or misplace things often? Not very often. (No)

Social Assessment What do you like to do in your free time?

6. Watching baseball, hockey, Wheel Of Fortune
7. Swimming, Hockey, Skating
8. Reading books that have language that is easy to understand.
9. Walking
10. Playing cards

Do you feel comfortable looking people in the eyes? Always

Do you say hello to friends and adults that you know? Always

Do you say hello to friends and adults that you don’t know? Never

Do you tell people your name when you meet them? Always

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Can you talk about something that isn’t very interesting to you? Usually
Do you ask questions to people you don’t know very well to see if you like the same things? Always

Do you try to be happy even when losing or not doing well at something? Always

Do you ask friends to hang out? Always

If you interrupt someone do you say “excuse me” or apologize for interrupting? Usually

Do you stay on topic when talking with people? Usually

Do you try to help people if they are hurt or not feeling well? Always

Do you say things like (wow, cool) to show someone that you’re interested in what they’re saying? Always

Do you let other people have a turn with things? Always

Can you explain directions to somewhere, naming the main point? Always
Social Skills Questionnaire – 2008 (Adults ASD)

Date of Completion: Nov.16, 2015

Initials M.N.  Gender (Circle One) Male  Current Age 21

Have you ever gotten mad and gotten in a fight? Yes If you answered yes, please explain: I got mad at my friend.

Do you usually keep your bedroom clean and organized? No.

Do you lose or misplace things often? Yes.

Social Assessment What do you like to do in your free time?

6. Going out in the back yard and playing
7. Watching sports – hockey and baseball
8. Going out to places like Community Centres
9. Likes learning about autoshop related things
10. Singing

Do you feel comfortable looking people in the eyes? Always

Do you say hello to friends and adults that you know? Sometimes

Do you say hello to friends and adults that you don’t know? Always

Do you tell people your name when you meet them? Always

Do you stand up for yourself when it comes to things that you’re good at? Always

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Do you say things like (wow, cool) to show someone that you’re interested in what they’re saying? Always

Do you let other people have a turn with things? Always

Can you explain directions to somewhere, naming the main point? Usually
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Appendix H

Visual Analysis of Data

Figure 4. Depiction of a single case design with a pre-test and post-test for M.D.

Figure 5. Depiction of a single case design with a pre-test and post-test for T.
Figure 6. Depiction of a single case design with a pre-test and post-test for M.N.
## Appendix I: Intervention Week 1 Data

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Appendix M: Graphs of Baseline and Intervention Data

Graphs of Baseline and Intervention Data

Figure 1. Number of Intervals During Which Social Skills were Displayed During Baseline and Intervention by M.D.
Figure 2. Number of Intervals During Which Social Skills were Displayed During Baseline and Intervention by T.
Figure 3. Number of Intervals During Which Social Skills were Displayed During Baseline and Intervention by M.N.
Appendix N

Training Manual

Using Positive Reinforcement, Prompting and Active Rehearsal to Increase Social Skills in Adults with Intellectual and Developmental Disabilities: A Training Manual

Designed by: Victoria Smith
Table of Contents

Ch.1- Definitions of Main Principles and Terms Utilized

Ch.2- Materials Required

Ch.3- Weekly Schedule for the Intervention

Ch.4- Positive Reinforcement

Ch.5- Active Rehearsal

Ch.6- Prompting
Chapter 1 – Definition of the Main Principles and Terms Utilized

Social skills.

Social skills are being able to begin and keep positive interactions going with other individuals (Gardner & Heward, 1991).

Positive reinforcement.

Positive reinforcement is the presentation of a positive stimulus such as a star sticker after the occurrence of a desired behaviour intended to increase future occurrences of the desired behaviour (Science of Behaviour, n.d.).

Active rehearsal.

Active rehearsal is the use of scripts to prompt and encourage the communication of participants with other clients (Science of Behaviour, n.d.).

Prompts.

Prompts are assistance and encouragement in different forms to remind clients of appropriate behaviour to display (Science of Behaviour, n.d.).
Chapter 2- Materials Required

As with most programs implemented with participants, there are materials that are needed to conduct the program. The following materials are required to implement the intervention.

1. Reinforcers (stickers, candy, chocolate)
2. Active rehearsal script
3. Whole interval recording sheets
4. Paper with verbal prompts written on it
Chapter 3- Weekly Schedule for Intervention

Week 1- Collection of Baseline Data (In this week, use the whole interval recording sheet to collect the data of when the participants are using social skills as would be done using the following methods. Follow the instructions displayed on the recording sheet by indicating if the social skills were displayed or not in each interval.)

Week 2- Active Rehearsal and Modelling (Reciting the script to clients)

Week 3- Active Rehearsal, Prompting and Reinforcement

Week 4- Fading, Prompting, Reinforcement, Modelling and Active Rehearsal

Week 5- Active Rehearsal
The use of the behavioural principle positive reinforcement is known to increase social skills in individuals with various disabilities.

Applied behaviour analysis is composed of different principles (Educate Autism, 2015). Within these principles is a principle known as positive reinforcement (Educate Autism, 2015). Positive reinforcement is regarded as the most important, most commonly and most widely utilized principle (Educate Autism, 2015). Reinforcement is a process that occurs when a behaviour is followed by a consequence that takes place immediately (Educate Autism, 2015). The behaviour is then strengthened by this consequence (Educate Autism, 2015). When a behaviour is strengthened it occurs more frequently (Educate Autism, 2015). When the term positive is added to the term reinforcement, it refers to the addition of a stimulus (Educate Autism, 2015). So, positive reinforcement is a process of increasing the likelihood a behaviour will occur when it is immediately followed by an added stimulus (Educate Autism, 2015). An example, is giving increasing eye contact by providing a cookie when the individual engages in eye contact. The behaviour (eye contact) is more likely to occur if it is followed by an added stimulus (the cookie). Numerous works have identified reinforcement as an efficient way to teach social skills to adults (Weiss & Harris, 2001).

When positive reinforcement is used as a part of intervention, it may be implemented through different schedules. Schedules represent the times that positive reinforcement should be provided in a specific duration of time.

The present intervention focuses on increasing social skills in individuals with intellectual and developmental disabilities. Forms of physical positive reinforcement are used as a part of the intervention. These forms consist of pats on the back and “high fives”. Pats on the
back and high fives are provided on an FR-2 ratio when social skills are demonstrated by the participants. These types of physical reinforcement are provided in ten minute intervals.

An FR-2 ratio is alternatively recognized as a fixed ratio of two forms of reinforcement. This means that every two times that a social skill is demonstrated that positive reinforcement is provided. Social skills are being able to begin and keep positive interactions going with other individuals (Gardner & Heward, 1991). Again, ten minute intervals of time are used.

Fading is also an important behavioural principle that is used in this process. Fading is a process in which behavioural strategies that have been implemented are eliminated slowly to prevent the participant from becoming overly dependent on the implemented strategies.

In order to fade the FR-2 ratio, these pats on the back and high fives are then increased to an FR-4 ratio. Similar to the FR-2 ratio, this means that positive reinforcement is delivered on a fixed ratio when social skills are displayed but instead of being delivered every two times that the appropriate behaviour is shown it is given every four times. As mentioned earlier, this assists the positive reinforcement being faded. Finally, an FR-6 schedule of reinforcement is utilized. This is shown by the positive reinforcement being given on a fixed ratio schedule every six times that social skills are shown. In increasing these schedules of reinforcement, the reinforcement is faded naturally.

Social attention given by the researcher is also utilized as a form of positive reinforcement in the intervention. This is delivered at every occurrence of a social skill by the participant. Examples of social attention are the researcher turning his/her head towards the client and maintaining eye contact with the participant.

An FR-1 schedule of reinforcement is used for social attention. With this schedule of reinforcement, positive reinforcement in the form of stickers, candy or chocolate is also
delivered every time that a social skill is displayed. This schedule is then faded to an FR-3 schedule of reinforcement. Therefore, positive reinforcement is provided every three times that a social skill is displayed. Finally, an FR-5 schedule of reinforcement is used. Again, increases in the increments utilized in the schedule of reinforcement are used so that fading occurs naturally.
Implementing positive reinforcement.

The following list explains how to implement positive reinforcement.

1. Sit at a table in the Community Options kitchen.
2. Have reinforcers that you are going to use in front of you. You can decide which reinforcers you would like to use. Normally, it is the most efficient to ask the participant what kind of reinforcer he/she would prefer. The options for reinforcers are candy, stickers and chocolate.
3. Take note of the schedules of reinforcement that you will be implementing.
4. Observe the participants’ behaviour.
5. Provide pats on the back and high fives on an FR-2 ratio when social skills are demonstrated by the participant. This means that every two times that a social skill is shown that positive reinforcement needs to provided. After every two times you see social skills being displayed, give a pat on the back or a high five. Provide social attention and the chosen reinforcer on an FR-1 ratio when social skills are demonstrated by the participant. This means that every time a social skill is shown that positive reinforcement in the form of social attention and the chosen reinforce needs to be given.
6. Continue to do this for three times. Record in the ten minute intervals on the data sheet when the appropriate behaviour (social skills) have been shown. How to do this will be shown on the sheet. Keep track of the time with the clock on the wall. When ten minutes has passed move to the next interval.
7. Increase the schedule of reinforcement to an FR-4 ratio for pats on the back and high fives after four times. Increase the schedule of reinforcement for social attention and reinforcers (candy, stickers, chocolate) to an FR-3.

8. Provide pats on the back and high fives on an FR-4 ratio when social skills are demonstrated by the participants. This means that every four times that a social skill is shown that positive reinforcement needs to provided. After every four times you see social skills being displayed, give a pat on the back or a high five. At the same time, provide social attention and the chosen reinforcer (candy, chocolate, stickers) on an FR-3 ratio when social skills are demonstrated by the participants. This means that every three times that a social skill is shown that social attention and a reinforcer (candy, chocolate, stickers) need to be given.

9. Continue to do this for three times. Record in the ten minute intervals on the data sheet when the appropriate behaviour (social skills) have been shown. Keep track of the time with the clock on the wall. When ten minutes has passed move to the next interval.

10. Increase the schedule of reinforcement to an FR-6 schedule of reinforcement after three times. Increase the schedule of reinforcement to an FR-5 schedule of reinforcement for social attention and the reinforcers after three times.

11. Provide pats on the back and high fives on an FR-6 ratio when social skills are demonstrated by the participants. This means that every six times that a social skill is shown that positive reinforcement needs to provided. After every six times you see social skills being displayed, give a pat on the back or a high five. At the same time, provide social attention and the chosen reinforcer (candy, chocolate, stickers) on an FR-5 ratio when social skills are demonstrated by the participants. This means that every five times
that a social skill is shown that social attention and a reinforcer (candy, chocolate, stickers) need to be given.

12. Record in the ten minute intervals on the data sheet when the appropriate behaviour (social skills) have been shown. Keep track of the time with the clock on the wall. When ten minutes has passed move to the next interval.
Chapter 4 - Active Rehearsal

Active rehearsal is another type of intervention used to increase the social skills of adults with intellectual and developmental disabilities.

Active rehearsal is the use of scripts to prompt and encourage communication of participants with other clients (Science of Behaviour, n.d.). Scripts are an outline of what the clients are expected to say. Scripts are typically written on a piece of paper and placed in front of the client so that they are able to easily access the document. Therefore, the client is guided by the written document. Scripts can also be utilized as a prompt if the client is struggling with what they are supposed to say in an interaction. It has been shown that when active rehearsal is used that it leads to increases in social skills of individuals with intellectual and developmental disabilities (Senatore, Matson, & Kazdin, 1982).
Task analysis.

The following list is called a task analysis. This list describes how to implement active rehearsal.

1. Sit at a table in the Community Options kitchen across from the participant.
2. Have the active rehearsal script outline in front of you.
3. Read over the script with the participant. Explain what the meaning / relevance of it is after you have read it and how it will be helpful for him/her. (i.e. This script will assist you to easily talk to someone at Community Options and have a full conversation with them.)
4. Model the script to the participant by saying the sentences to the participant and then ask them to say the sentences back to you.
5. Encourage the participant to approach other participants at Options and say the lines that they read over in the active rehearsal script to engage in conversation.
Active Rehearsal Script.

The following script is the script that is being used for increasing social skills in individuals with intellectual and developmental disabilities.

Participant: Hi! How are you doing? Wait for reply. Respond to how the person is feeling. If they are good for example say I am glad to hear that you are doing well.

Participant: What did you do this morning? Wait for reply.

Participant: Then, say oh that’s interesting. Wait to see if they ask you what you did. If they don’t, then tell them about what you did. For example, you could say I was at work and did ________________ today.

Participant: So, what did you have for lunch today? Wait for reply. See if they ask you what you had for lunch.

Participant: If they don’t ask you then tell them what you had.

Participant: Did you watch the game last night? Wait for reply. Tell them if you did too.

Participant: Did you think it was a good game? Wait for their reply. See if they ask you if you liked it. If they don’t ask you if you liked it, tell them if you liked it.

Participant: What are you doing this afternoon? Wait for their reply. See if they ask you what you’re going to do.
Applying active rehearsal.

The following is an example of applying active rehearsal. State the script to the participant and get them to state the script back to you. Observe the participant. If he/she states parts of the script to other participants then social skills have been reinforced.

As has been represented in this chapter, active rehearsal is an effective method in increasing social skills in adults with intellectual and developmental disabilities. Prompting is also a very efficient method of increasing social skills in adults with intellectual and development disabilities which will be illustrated in the following chapter.
Chapter 5- Prompting

Prompts are defined as assistance and encouragement in different forms to remind clients of appropriate behaviour to display (Science of Behaviour, n.d.). Increases in social interaction in developmentally delayed adults have also been noted following the use of prompts (Singh, & Millichamp, 1987).

Prompting is a behavioural principle utilized to increase desired behaviour. Prompts are regarded as being successful in teaching individuals with disabilities such as Autism Spectrum Disorder (Friendship Circle, 2013). The use of prompts is an excellent approach to teaching individuals because the progress of individuals is continuous and the use of negative terms repetitively such as “no” does not occur (Friendship Circle, 2013). Prompting is used to assist the occurrence of appropriate behaviour (Friendship Circle, 2013). Prompting can be delivered in various forms such as verbal, physical, or visual. Examples of prompts are instructions, verbal statements, gestures and demonstrations (Friendship Circle, 2013).

Verbal prompts used.

The following are verbal prompts that were used as part of the intervention.

1. “Do you want to go see what ________ is doing?”
2. “Do you want to go say hello to ________?”
3. “Did the Blue Jays win last night?”
Implementing prompting.

The following is the process of how to implement prompting.

1. Situate yourself in the Community Options kitchen.
2. Have examples of verbal prompts in front of you.
3. Observe the behaviour of the three participants.
4. When a social skill is not displayed, implement a prompt to remind and encourage the participant to display appropriate behaviour according to the appropriate schedule that should be utilized at the time.
5. Continue to observe the participant’s behaviour.
6. Continue to state a verbal prompt when appropriate behaviour is not shown. Do this three times.
7. The schedule of reinforcement will be changed to allow fading (moving to the next schedule of reinforcement) to take place.
8. The behaviour will be prompted after the appropriate behaviour has not been displayed. This will be based on the amount of times related to the schedule of reinforcement being used at this time through the use of one of the statements and then reinforcement will be delivered.
9. Observe the participants for appropriate behaviour.
10. State the prompts once again when the appropriate behaviour is not displayed. Continue to do this three times.
11. After this, the schedule of reinforcement will be changed to the next appropriate schedule of reinforcement.
12. Observe the participant’s behaviour.
13. The behaviour will be prompted after the appropriate behaviour has not been displayed.

This will be based on the amount of times related to the schedule of reinforcement being used at this time through the use of one of the statements and then reinforcement will be delivered.

**Applying prompting.**

The following is an example of how to apply prompting.

Observe the behaviour of the participant. If the participant does not display the behaviour, state a verbal prompt such as “Did the Blue Jays win last night?” to remind the participant to display the appropriate behaviour (social skills).
References


