A thesis submitted to the School of Community Services in partial fulfilment of the requirements for the Honours Bachelor of Behavioural Psychology

St. Lawrence College
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The procedures in this manual are meant to be used by agency staff as part of the broader services they provide, or under supervision of agency staff.
Dedication

I would like to dedicate this work to all those who believed in me and helped me to find my true passion.
Abstract

Children with autism can have problems with communication, and functional communication training (FCT) is a procedure for replacing challenging behaviour with socially acceptable alternatives. Behaviour analysts have a large influence on developing skill sets and supporting individuals with autism spectrum disorder (ASD) or those with with challenging behaviours. Providing staff with in depth training on how to implement FCT can increase the effectiveness of FCT sessions. One effective ways to train staff is using the behavioural skills training (BST) model (Sarokoff & Sturmey, 2004). This allows staff to not only be provided with information but also to practice and master the required skills. This thesis consists of a training manual that provides information about FCT, and a workshop that provides the same information and follows the BST model. A step by step guide to FCT is a gap in the literature and training for behavioural analysts. The training manual and workshop presented aim to teach behavioural analysts, or those aiming to become one, about what FCT is, how to create and implement a FCT protocol, which will ultimately improve clinical skills in FCT. The training manual and workshop can be shared within the agency and within St. Lawrence College to further education about FCT. The final product of the manual and workshop, as well as strengths and limitations of the project are addressed.
Acknowledgements

Merran Campbell
First, I would like to thank Merran Campbell, my college supervisor for her support and caring approach throughout this process. Her academic guidance and dedication to the field of autism have been invaluable.

Spectrum Intervention Group
Next, I would like to thank the staff at Spectrum Intervention Group without whom I would not have been able to write this thesis. The knowledge and opportunities I was provided were irreplaceable. I appreciate everyone who gave me the opportunity to learn and passed on their expertise.

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Finally, I would like to thank all of friends and family, without your on-going support I would not have made it through this process. I love and appreciate you all.
Table of Contents

Dedication ........................................................................................................... ii
Abstract ............................................................................................................... iii
Acknowledgements ........................................................................................... iv
Chapter I: Introduction ..................................................................................... 1
Chapter II: Literature Review ......................................................................... 3
Chapter III: Methodology ............................................................................... 6
Chapter IV: Results .......................................................................................... 8
Chapter V: Discussion ...................................................................................... 9
References ......................................................................................................... 12
Appendix A ....................................................................................................... 13
Appendix B ....................................................................................................... 16
Appendix C ....................................................................................................... 18
Appendix D ....................................................................................................... 19
Appendix E ....................................................................................................... 31
Chapter I: Introduction

Functional Communication Training

Functional communication training (FCT) is a widely used and effective procedure for managing difficult behaviour problems (Tiger, Hanley & Bruzek, 2008). FCT is the teaching of a functional communicative response that serves the same function as the problem behaviour, and it is also a differential reinforcement (DR) procedure according to Tiger et al. (2008). FCT is different from other DR interventions because the taught response is always a form of communication. FCT is often packaged with the following three stages, functional analysis, teaching a socially relevant response and generalizing across people and settings as stated by the authors. FCT is individualized to each child’s individual needs and abilities by using a functional behaviour assessment (FBA) to determine the function of the behaviour. As well, antecedents that evoke challenging behaviours can be different for each child as well as the consequences which maintain the behaviour, therefore this procedure is always individualized as explained by Tiger et al. (2008). FCT can be used for a lot of different problem behaviours and a variety of functions since it is tailored to each child, which is why it is frequently effective (Tiger et al. 2008).

Rationale/Hypothesis

The thesis being presented includes creating a training manual for both the theory and implementation of FCT. A training manual was developed to teach the theory behind FCT and proper implementation. Additionally, a workshop was developed to train students on the implementation of FCT. In many behavioural psychology programs, there are no in-depth teachings of FCT, there is only an overview of many different interventions. This is a downfall for anyone who wants to provide ABA services in the future, without doing more schooling. There is a need to further train new behaviour analysts and students, which, can be done through a training manual. The effectiveness of the manual can be tested using a workshop which includes the same information from the manual. By attending a workshop or reading the manual, students can increase their knowledge about the theory of FCT and how to effectively implement FCT procedures. Finally, the purpose of designing a FCT training was a personal interest and the development of the training manual was to benefit the agency.

Overview of Training Manual and Workshop

The manual was designed to train new staff and those who are not familiar with FCT, within a centre based treatment program. The manual provides the overall theory of FCT, required skills of FCT and application of the skills. The manual explains what FCT is, why FCT is used, the steps to using FCT and how to effectively implement FCT. Also, included in the manual is the purpose of doing a functional analysis (FA), how to set up an FA and the different functions of behaviour that could be addressed with FCT. The manual explains how to structure an FCT session and includes sample data sheets. It outlines how the levels change throughout the treatment, either by changing the number of demands or the type of demands. Also included is a checklist on the effectiveness of the procedure and a variety of key steps for FCT. The workshop included the same information as the manual and followed the model of behavioural skills training (BST). The purpose of creating the FCT workshop for St. Lawrence College was to test the effectiveness of the training manual. During the time of the implementation of this project the training manual and workshop could not be tested at the agency, however this manual and workshop was designed to be used at the agency in the future. The information was provided first in a PowerPoint and then any questions where answered. The students then watched a role
play of a FCT session, after which the students conducted a role play with each other and were provided with feedback and correction of errors.

**Overview of Thesis**

Included in this thesis is a review of literature that provides a rationale for creating a training manual, increasing training for behavioural analysts, using BST and using FCT. Several studies and their findings are presented and gaps in the literature are discussed. Following the literature review, the methodology is presented. Included in the methodology is the process used to create both the training manual and workshop. Also discussed is the procedure for the workshop and the measures used. Following the methodology is the results, which outlines the final product of the training manual and workshop. Finally, limitations to the training manual and workshop are discussed, as well possible areas for further research.
Chapter II: Literature Review

**Functional Communication Training**

Language and communication can be one the most significant impairments for children with autism (LaRue, Weiss, Cable, 2009). Children with autism can have difficulty with all parts of communication including expressive language, and comprehension as stated by LaRue et al. (2009). Due to their communication deficits, children with autism often engage in challenging behaviours, such as aggression, self-injurious behaviours and inappropriate vocalizations. These problem behaviours are often present when the child is trying to access positive or negative reinforcement, such as attention, tangibles or escape from demands as stated by the authors. Behavioural problems will often decrease by teaching a child a communicative response that alters the conditions that serve as a function for the behaviour, FCT provides the child an appropriate way of expressing a need. (Carr & Durand, 1985). FCT is the most used procedure for replacing a problem behaviour with a socially acceptable alternative response according to LaRue et al. (2009). FCT is considered the most effective intervention because an FA is done to determine the function of the behaviour, functional matched interventions have been proven to be more effective (Tiger, Hanley & Bruzek, 2008).

FCT ensures that the alternative behaviour response provides the same kind of reinforcement as the problem behaviour (Tiger et al., 2008). For example, a child who has tantrum to gain attention would be taught an appropriate mand for attention. Extinction paired with FCT has been proven to be an effective treatment for a wide range of problem behaviours that differ in function and topography (Kurtz, Boelter, Jarmolowicz, Chin & Hagopian, 2011). Functional assessment is a process with the goal of identifying factors that influence the problem behaviour, and are done before developing an intervention (Hanley, Jin, Vanselow & Hanratty, 2014). Functional assessments usually include both in-direct and direct assessments and an FA (Hanley, et al., 2014). An FA contains at least two conditions, a test and a control condition. The test condition is to establish which factors evoke and maintain the problem behaviour, and the control condition is usually one in which the child is in an environment that is least likely to have problem behaviours. Research has shown determining the function of behavioural problems and developing assessment methods and interventions based on these functions is the most effective strategy (Carr & Durand, 1985).

Problems often arise when the request or alternative communication response can not be immediately reinforced, or when the appropriate communication is not reinforced it can lead to a resurgence of problem behaviour (Ghaemmaghami et al., 2016). According to Ghaemmaghami, Hanley and Jessel (2016) a key component of generalizing FCT is thinning the reinforcement schedule until it resembles a typical environment for the child. A common procedure to increase the delay between the functional communication response (FCR) and the reinforcer is creating a delay schedule. The authors explained many schedules include a response requirement, meaning a specific number of demands or time completing a work activity, that are engaged in after the FCR is emitted, upon the completion of the depends the child is then provided with reinforcement. Once an FCR is taught FCT also teaches tolerance by not honoring every request for reinforcement, over time the time between the FCR and deliver of reinforcement is increased as stated by the authors. FCT is comprised of many different parts, usually it begins with a functional assessment to determine the function of the behaviour, next it moves into teaching the FCR, once the FCR is learned a tolerance response is taught (Ghaemmaghami et al., 2016). Once the tolerance response is mastered delays are presented to extend the time between the FCR and reinforcement (Ghaemmaghami et al., 2016). Having a complete understanding of the theory and
application of FCT is important to anyone who wants to work in IBI or ABA services, and training is an important part of becoming an effective behavioural analyst and one of the most effective ways of training is following the BST model.

**Importance of Training**

Behavioural analysts have a significant influence on developing skill sets and supporting the behaviour of people with disabilities. However, there is limited research on the most effective ways to developing the necessary skills for the field (Artman-Meeker, Ronsenberg, Badgett, Yang & Penney, 2017). Success in the behavioural psychology field is dependent on a thorough knowledge of training techniques that are available (Bailey & Burch, 2009). Traditional training usually includes group instruction and handouts, and does not ensure that participants can implement the skills taught (Bailey & Burch, 2009).

In a study done by Artman-Meeker, Ronsenberg, Badgett, Yang and Penney (2017), the effects of training behaviour analyst’s implementation of FCT using bug in ear coaching were evaluated. Bug in ear coaching allowed for immediate feedback, praise and correction of errors as stated by the authors. The bug in ear training increased the rate of trials, fidelity of the trials and the rate of independent communication for each child. This demonstrates increased knowledge about FCT and immediate feedback about procedures the more effective implementation is going to be explained the authors. Bug in ear training is not always available but similar results may be found from a comprehensive workshop that allows for role plays and practice. A thorough knowledge of behavioural principles and an application of these principles is required of behaviour analysts, and the best way to achieve this competency is through practice of the skills while being provided with feedback.

**Behavioural Skills Training**

Behavioural skills training has been widely used to teach a variety of behavioural and other skills (Sarokoff & Sturmey, 2004). It has been proven effective for teaching a range of skills through extensive research (Dogan et al., 2017). According to Dogan et al. BST can teach skills thoroughly in a short period of time and is considered an essential part of training. In a study by Sarokoff and Sturmey (2004) three special education teachers were taught discrete-trail teaching using the BST model. The authors explained the teacher was given a written of the components of the teachings and procedures, both were reviewed with the researcher. The teacher was then given a graph of their performance during baseline and the researcher provided feedback as stated by the authors. The next part was rehearsal; the teacher would perform three trials without interruption in front of the researcher, immediately following the trials the researcher provided the teacher with feedback. The researcher would next model the discrete-trail training components that were incorrect for the teacher explained Sarokoff & Sturmey. The teachers scores increased to near 100% accuracy. Instructions, feedback, rehearsal and modeling are believed to be responsible for a significant portion of the increase according to the authors.

A study done by Dogan et al. (2017) taught parents how to use BST to effectively teach their children social skills. The parents were taught each step of BST and how to reinforce pro social behaviours of their child. Parents received training first by being provided with a handout that explained all the steps of BST. Next the researchers modeled the teaching of social skills using BST, the next part of modeling included the parent being the role of the child and the researcher as the parent as explained by the authors. Then the researcher and parent would switch roles and the parent would use the BST to teach the researcher social skills and after the role play the parents were given feedback. The parents’ number of correct teaching steps ranged from 82%
to 96% during post training trials stated Dogan et al. The intervention was also effective in improving the children social skills as stated by the authors.

Nigro-Bruzzi and Sturmey (2010) evaluated the effects of using BST to train staff to implement mand training to children. In the study staff were provided with written steps of the procedures to be used, then watched a video role play of a FCT session. The participants then practiced and were provided with feedback. The staff member would be given feedback on role plays following each session. The staff received only three 60-minute sessions of training and the authors found the intervention provided by the newly trained staff was clinically beneficial for the children involved.

Koegel, Russo, and Rincover (1977), conducted a study to evaluate if special education teachers could use behaviour modification correctly. The teacher training procedure consisted of reading a training manual including correct and incorrect use of behaviour modification procedures. The teachers were then shown videos of the modification procedures being used both correctly and incorrectly according to the authors. The teachers then tried to use the behaviour modification procedures, the researcher would interrupt every five minutes and would provide feedback. This feedback was usually quick and only would take a couple seconds. If the teacher was incorrectly using a procedure the researcher would model the correct procedure. Every 30 minutes feedback in more detail was provided. During the post-training sessions, the teachers’ scores ranged between 90% and 100% of correct use of behaviour modification procedures as stated by Koegel et al.

Lavie and Sturmey (2002) demonstrated the efficacy of the use of BST teaching staff within a special education classroom to conduct a paired stimulus preference assessment. The training included two 30 to 40-minute training sessions, in which the skills needed were described and teachers were also provided with a checklist of the skills, then verbally trained on the skills as explained by the authors. Next the skills were shown using a video model, and the staff were then observed practicing the skills. While observing the teachers, the researcher would provide corrections and feedback. The modeling, rehearsal and feedback continued until 85% of the skills were performed correctly for 2 consecutive sessions. Post training scores ranged from 98% to 100% of trials performed correctly as reported by Lavie and Sturmey.

FCT is considered a best practice for teaching children with autism a way of communicating as a means of reducing challenging behaviour. Although there are many articles on the effects of FCT, on a range of different problem behaviours, what is lacking is a step by step guide for implementation. A training manual and workshop about FCT would be beneficial for an agency that regularly uses this ABA technique and for any student or new member of the behavioural psychology field. Providing immediate feedback, correction of errors and time to practice skills is an effective way to acquire the skills necessary to implement FCT procedures. Training such as the one proposed here will prepare new staff of the agency and ensure they have the necessary skills to implement FCT.
Chapter III: Methodology

Participants
A training manual and workshop were created for students and/or members of the behavioural psychology field.

Consent.
A model consent form (Appendix A) outlined why the workshop was taking place and specified that the data collected would only be used for educational purposes. It also outlined that participation was voluntary. The form outlined the purpose of the workshop, confidentiality and requirements of the participants. The consent forms are being kept in a locked filing cabinet in a locked room at the agency. Consent was discussed verbally at the beginning of the workshop, in addition to the written form being provided to the participants.

Design and Measures
The workshop was utilized to test the effectiveness of the training manual. Due to the agency not having any new staff or staff that needed training the workshop was designed to train students in the Behavioural Psychology program at St. Lawrence College. The training manual includes information about what FCT is and how to develop an FCT protocol. The workshop included a pre- and post-test design. Before the workshop took place, the students involved were asked to complete a questionnaire (Appendix B) on knowledge of FCT and steps for implementation. Another pre- and post-test was conducted with five students involved in the workshop, and they were chosen at random during the workshop. They were evaluated pre- and post-workshop using a checklist (Appendix C) with the key steps of implementing FCT. The participants were given a case study, then they created a FCT protocol, including choosing the replacement behaviour and structure of a FCT session. Once they created their protocol, they role played the sessions of FCT. During this time, the checklist was filled out, based on the skills being displayed. The entire class was partnered with someone to complete the role play. Data were only collected on five students chosen randomly during the workshop. During the role play five students were chosen randomly, they did not know they had been chosen. The data collector was circulating around the room collecting the data. For practical reasons, on account of a larger class size, it was more feasible to collect data on only five students. The dependent variable being measured was knowledge of FCT, this was defined as overall knowledge about what FCT is, the steps of creating a FCT protocol and how to implement FCT. Knowledge of FCT was measured using appendix B. The independent variable was the training manual and workshop. The pre- and post-test measures chosen were used because they are effective for large groups of people and allow measurement of skills before and after the workshop and reading the training manual.

Procedures
The manual included information about what FCT is, why FCT is used, the steps to using FCT and how to effectively implement FCT. Also, included is the purpose of doing an functional analysis (FA), how to set up a FA and kinds of reinforcement that could be used with FCT. All information in the training manual was included in the workshop. It also followed the model of BST. There was one, two to three-hour workshop. The workshop included two 30-minute blocks for role plays and one-hour block of instructional time about FCT. Also included was an extra 30 minutes intended for questions or just extra time as a buffer if needed. First the information was provided in a PowerPoint format and then questions were answered. The students then watched a
role play of an FCT session and then provided with an opportunity to ask questions. After the students watched the FCT session, they were given a case study and then asked to pair up and instructed to practice using the steps of FCT. The instructor of the workshop provided feedback and correction of errors. During the second role play oral feedback was provided immediately while the facilitator of the workshop circulated the room. A case study was provided and used for all role plays during the workshop. After the students were given time to complete the second role play and data had been collected a class discussion took place to discuss the students approach to the role play. As students gave their answers it was another chance for feedback.
Chapter IV: Results

Product

The complete version of the Manual for Implementation of Functional Communication Training can be found in Appendix D. This manual was created to teach new staff and students about FCT, why FCT should be used and how to use FCT. The manual also has information on why and how to do a FA. It also provides information on how to create a FCT protocol. The manual was created based on evidence based literature and practicum experience.

A workshop was also created that could be used for either new staff within the agency or within a school to teach students in the behavioural psychology field. Instructions for the workshop can be found in Appendix E. Materials needed can also be found in Appendix E. The workshop contains instructions for the person running the workshop, a PowerPoint presentation containing the same information as the training manual. The workshop also contains a pre-post test (Appendix B) that can be used to measure the effectiveness of the workshop. A checklist (Appendix C) is also included that can be used to measure effectiveness as well, this measure is also used as a mastery criterion during the role play component of the workshop. Due to time constraints the manual and workshop could not be implemented.
Chapter V: Discussion

The purpose of the training manual and workshop was to increase knowledge and accuracy with the application of FCT. This was identified to be a gap in the literature as there are many articles about why FCT is an effective intervention but there are not many resources for new staff or students about how to create and use a FCT protocol. The training manual and informational part of the workshop outlined, what FCT is, why FCT is used, the steps to using FCT and how to effectively implement FCT. There is also information about the purpose of a functional analysis (FA), and how to step up an FA and various kinds of application for FCT. The workshop follows a BST model. First, the students are given the information, next they observe a role play modelling the correct components of a FCT session and then the students practice the steps of FCT themselves. Feedback and corrections are given throughout the rehearsal. Mastery would be considered when the participant scores between 80% and 100% on the Implementation Checklist for FCT. The training manual and workshop provides the agency with resources that can be used with new staff or those who are not familiar with FCT to better improve their clinical skills.

Strengths

Both the workshop and training manual were developed to provide further education about FCT protocols and how to apply them. The workshop and manual provide a step by step guide on how to implement both an FA and FCT. These guides can also be used as a checklist when providing FCT services. This is considered a strength because it allows you to self-evaluate, as well provides a reference for participants in their future work.

Another strength of the workshop is it follows the BST model and, this allows participants in the workshop to practice the needed skills without the pressure of being in an intervention session. The BST model also allows the participants immediate feedback from the instructor of the workshop, allowing them to improve their clinical skills throughout the workshop.

The workshop also includes step by step instructions on how to provide the workshop; this makes implantation of the workshop easy and clear. The PowerPoint presentation is also included in the guide. The pre- and post-test can be used as measures to evaluate the effectiveness of the workshop. This can be done by comparing participants score pre- and post, and identify the amount of change. The checklist of implementation can also be used as a criterion of mastery. Also, because all the information is provided for the instructor it ensures that all participants are provided with the same information if the workshop is provided multiple times.

Limitations

Since the workshop could take place through a class or an agency, there are ethical considerations if someone does not want to participate and feel may be penalized for not taking part in the workshop or doing poorly throughout the workshop. To address the problem at the beginning of the workshop all the participants should be told they do not have to participate in the workshop if they do not want to and whether they participate or not it will not affect their mark in the class or job at the agency or be shared with teachers or management.

A possible limitation to the study is a small sample size as members of the behavioural psychology field are from a similar educational background, it is possible not everyone learns in the same way as those in the group. This could affect whether the manual and workshop can be generalized to everyone.
Another limitation is that additional training will be needed after reading the training manual and attending the workshop. The training manual and workshop and meant as a starting point for learning about FAs and FCT. Both FAs and FCT should still be done under the supervision of a BCBA or other qualified professional.

**Recommendations for Future Research**

Further research needs to be conducted on how different methods of teaching affects the amount of skills acquired by the participants. It is possible that a different teaching method may be more effective for some people and less effective for others. Future research should focus on creating more specific training modules, workshops and manual, so professionals and students in the behavioural psychology field can further not only their education about FCT but also their clinical skills.

**Multi-Level Challenges**

This thesis describes the creation of the workshop and training manual for the agency to use or student in the behavioural psychology field. The multi-level challenges focus on the possible implementation challenges that could be faced.

**Client Level**

When creating the workshop and training manual, the education background of the participants should be considered. This can be challenging because each participant learns in a different way and not all learning styles can be taught at the same time. Everyone also has a different background and may not have the same past learning. The workshop and training were created to be informative for everyone who attended the workshop or reads the manual.

**Program Level**

One challenge identified was the staff’s low motivation to participant in the FCT training workshop or read the training manual. The workshop and the training manual are to further education about FCT and improve clinical skills. Many of the staff had heavy caseloads and did not want to have to use up more of their own time to do what they saw as more required work. Motivation could be improved by holding the workshop during staffs work hours so they do not need to participate in their own time. Also presenting the workshop and training manual as a learning opportunity rather than more work may also help.

**Agency Level**

A challenge that was identified by the agency throughout my time there was there are few people at the agency who facilitate or collect data on FCT sessions. Those who are part of FCT sessions already have a deep knowledge of how FCT works and why it is used. This was an overall challenge for my thesis. The training manual and workshop were developed to train new staff to the agency, staff new to FCT or future placement students at the agency. Due to the manual and workshop not being required often, it is possible that new staff or placement students may not be aware that it is there as a resource. It could be helpful to have new staff read the manual and take part in a workshop before facilitating FCT sessions as these skills are pivotal.

**Societal Level**

A possible challenge to implementation of the workshop and training manual is the stigma around the children who are provided with FCT. Children who receive FCT services are often aggressive because they do not have another way to express themselves. Often staff do not want to work with these children because they are perceived as more difficult or out of fear of being hurt. This could have an impact on people desire to learn more about FCT and improving their FCT clinical skills.
**Contributions to the Field of Behavioural Psychology**

This training manual and workshop provides a thorough training of FCT to the next generation of behaviour analysts. The training manual and workshop teaches anyone in the field seeking further information about what FCT is and how to implement it. It is a resource that can be used for anyone providing FCT services. It provides a deeper understanding of why FCT is used and why it is so effective. The manual provides all the steps to creating a FCT protocol and how to implement the protocol. This manual and workshop is an invaluable tool for anyone who provides or plans on providing FCT protocols.
References
Appendix A

CONSENT FORM

Principal Investigator: Amber Turcotte
Name of supervisor: Merran Campbell
Name of Institution: St. Lawrence College
Name of agency: Spectrum Intervention Group

Invitation
You are being asked to take part in a research study. I am a student in my 4th year of the Honours Bachelor of Behavioural Psychology at St. Lawrence College. I am currently on placement at Spectrum Intervention Group. As a part of this placement, I am completing a research project (applied thesis). I would like you to help me 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?
My project is on using Functional Communication Training (FCT), as it is one of the most used and effective procedures for decreasing difficult behaviour problems and increasing functional communication. It consists of teaching an alternative response to the problem behaviour. I am creating a training manual and workshop about FCT for new behaviour analysts and students. Many programs do not have in depth teaching of FCT, therefore I am creating a training manual to train new staff at Spectrum Intervention Group. Since Spectrum Intervention Group does not have any new staff, the effectiveness of the manual will be tested by running a workshop at St. Lawrence College. The hope is by you attending the workshop it will improve your FCT knowledge and application. Data collected in this study will be used for research.

What will you need to do if you take part?
If you choose to take part in this study, you will be asked to take part in one 2-3-hour workshop on FCT. During this workshop, you will need to fill out a short questionnaire before and after the workshop. This questionnaire is only going to be used to evaluate the effectiveness of my workshop. You will also be asked to take part in a role play before and after the workshop, during this role play you will be given a case study and asked to create an FCT procedure and role play it with a partner in the class. Data will be collected using a short checklist that includes key skills.

What are the potential direct benefits and risks of taking part?
Benefits of taking part in this research study may include increasing your knowledge...
and application of FCT. It is possible that you may feel anxiety or embarrassed during the role play. You will not be asked to role play in front of the class. It will only be with a partner of your choosing. The role play is meant as a learning activity for you. if you are not comfortable with the role play you do not have to take part in the workshop.

**Will the information you collect from me in this project be kept private?**
All information and data collected during this study will be kept on my laptop, it is password protected and any files about this study will be password protected also. On the QUESTIONNAIRE that will be done before and after the workshop, everyone will be given a number to put on their test, so tests can be matched pre-and post-test. Informed Consent Forms will be stored in a locked filing cabinet in a locked room for 10 years at St. Lawrence College, all other information or data will be kept for 7 years, the hard copies will be destroyed 2 weeks after the workshop, digital copies of data will be kept on my password protected computer. The data and results from the research are part of my thesis and will be available in the St. Lawrence College library and may also be published in professional journals or conferences. You will know the other students in the workshop. The only time confidentiality will be broken is when required by law.

**Do you have to take part?**
Taking part is voluntary. It is up to you to decide whether you take part in this research project. If you do decide to take part, you will be asked to sign this consent form. Not taking part in this workshop will in no way affect your grade in the class.

**Contact for further information**
This research project has received ethical clearance from the Research Ethics Committee for Behavioural Psychology (REC-P) under the authority of the St. Lawrence College Research Ethics Board (SLC-REB). The project was developed under the supervision of Merran Campbell, my supervisor from St. Lawrence College. I appreciate your cooperation and if you have any additional questions, feel free to ask me, Amber Turcotte, at ATurcotte31@sl.on.ca. You can also contact my College Supervisor, Merran Campbell, at mncampbell@ls.on.ca. If you have concerns about the way this research is being conducted or about your rights as a participant, you may contact the SLC-REB Chair at reb@sl.on.ca.
Consent
If you agree to take part in this research project, please complete the following form and return it to me as soon as possible.

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 the data from this study will be presented at the St. Lawrence College Behavioural Psychology Poster Gala, and may be reported at other conferences or published in a scientific journal. No identifying information will be included in these reports.

I hereby consent to take part.

____________________________________
Participant's Name ____________________ Signature _______ Date _____________

____________________________________
Student's Name ________________________ Signature _______ Date _____________
Appendix B
Pre- and Post Test for FCT Knowledge and Application

1. Before implementing FCT it is important to complete a functional analysis.
   a) True
   b) False

2. The learner should be punished for engaging in interfering behaviours during FCT.
   a) True
   b) False

3. In the first stages of FCT, how should reinforcement be provided when the learners use the replacement communicative behaviour.
   a) On a variable schedule
   b) On a fixed ratio schedule
   c) Consistently
   d) Immediately and consistently

4. When using errorless teaching, you should use:
   a) No prompts
   b) The most intrusive prompt tolerated by the learner.
   c) A prompt that usually results in the learner using the replacement behaviour
   d) A prompt that always results in the learner using the replacement behaviour.

5. It is important to slowly ___________ the time between the replacement behaviour and the delivery of reinforcement.
   a) Increase
   b) Decrease
   c) Neither increase or decrease

6. When choosing a replacement behaviour, it is important the behaviour:
   a) Serves the same function as the problem behaviour
   b) Recognizable by most people
   c) Taught in a small amount of time
   d) Both a and b
   e) All of the above

7. Data collection should focus on
   a) Frequency of the replacement behaviour
   b) Prompts required to produce the replacement behaviour
c) Frequency of any problem behaviours
d) Both a and b

8. FCT teaches:
a) Sign language
b) PECS
c) A replacement behaviour that serves the same function as the problem behaviour.

9. FCT is only used for major interfering behaviours.
a) True
b) False

10. Teaching a child to ask for attention would be an appropriate replacement behaviour for someone who has tantrums when a teacher is helping other children.
a) True
b) False
Appendix C
Implementation Checklist for Functional Communication Training

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1.</td>
<td>Was the alternative behaviour functionally matched?</td>
<td>Y</td>
</tr>
<tr>
<td>2.</td>
<td>Was the selected form of communication appropriate for the learner?</td>
<td>Y</td>
</tr>
<tr>
<td>3.</td>
<td>Can the replacement behaviour be emitted in a short amount of time?</td>
<td>Y</td>
</tr>
<tr>
<td>4.</td>
<td>Was there varied vocabulary when placing demands?</td>
<td>Y</td>
</tr>
<tr>
<td>5.</td>
<td>Was interfering behaviour not reinforced?</td>
<td>Y</td>
</tr>
<tr>
<td>6.</td>
<td>Was the learner prompted using errorless learning?</td>
<td>Y</td>
</tr>
<tr>
<td>7.</td>
<td>Did the learner need to mand for the reinforcement?</td>
<td>Y</td>
</tr>
<tr>
<td>8.</td>
<td>Was the learner reinforced for emitting the replacement behaviour?</td>
<td>Y</td>
</tr>
<tr>
<td>9.</td>
<td>Was the duration between the replacement behaviour and reinforcement slowly increased?</td>
<td>Y</td>
</tr>
<tr>
<td>10.</td>
<td>Was behaviour specific praise used?</td>
<td>Y</td>
</tr>
</tbody>
</table>
Functional communication training and functional analysis should be done under the supervision of a board certified behaviour analyst or another qualified professional.
Table of Contents

1. What is Functional Communication Training...........................1
2. Why Functional Communication Training is used..............1
3. Purpose of Completing a Functional Analysis.................1
4. How to Set Up a Functional Analysis...............................2
5. Types Functional Analysis........................................2
6. What Kind of Reinforcement is Used with Functional Communication Training........................................3
8. How to Develop a Functional Communication Training Protocol..........................................................3
   A. Identifying problem behaviour ...................................3
   B. Completing a functional behavioural assessment ..........3
   C. Identifying a replacement behaviour ...........................4
   D. Creating and implementing data collection ....................4
   E. Manipulating the environment to elicit the interfering behaviour.......................................................6
   F. Planning opportunities for generalization......................6
   G. Prompting learners to use replacement behaviour ..........6
   H. Extinction.....................................................................6
   I. Providing reinforcement.............................................7
   J. Shaping the replacement behaviour............................7
   K. Fading the use of prompts........................................7
   L. Increasing the time between the replacement behaviour and reinforcement........................................7
   M. Monitoring the progress of the learner.........................8
9. Role Play........................................................................8
10. References......................................................................9
What is Functional Communication Training

Functional communication training (FCT) is a widely used and effective procedure for managing difficult behaviour problems (Tiger, Hanley & Bruzek, 2008). Tiger, Hanley and Bruzek, (2008) stated FCT is the teaching of a functional communicative response (FCR) that is maintained by a reinforcer with the same function as the problem behaviour, and it is also a differential reinforcement (DR) procedure. FCT is different from other DR interventions because the taught response is always a form of communication. FCT is often packaged with the following three stages, functional analysis, teaching a socially relevant response and generalizing across people and settings. FCT is individualized to each child's individual needs and abilities by using a functional analysis (FA) to determine the function of the behaviour as stated by the authors. As well, antecedents that elicit problem behaviours can be different for each child, therefore this procedure is always individualized (Tiger et al. 2008). FCT can be used for a lot of different problem behaviours and a variety of functions since it is tailored to each child, which is why it is very effective.

Why Functional Communication Training is used

Children with autism can have problems with all part of communication including expressive language, receptive understanding, and comprehension as stated by DSM-5 (American Psychiatric Association, 2013). Due to their communication deficits, children with autism will often engage in problem behaviours, such as aggression, self-injurious behaviours and inappropriate vocalizations. These problem behaviours are often present when the child is trying to access positive or negative reinforcement, such as attention, tangibles or escape from demands (LaRue et al., 2009). Behavioural problems will often decrease by teaching a child a communicative response that alters the conditions that serve as a function to the behaviour, FCT provides the child an appropriate way of expressing a need. (Carr & Durand, 1985). FCT is the most used procedure for replacing a problem behaviour with a socially acceptable alternative response according to LaRue et al. (2009). FCT is considered the most effective intervention because an FA is usually done to determine the function of the behaviour (Tiger, Hanley & Bruzek, 2008). FCT also ensures that the alternative behaviour response provides the same kind of reinforcement as the problem behaviour (Tiger et al., 2008) for example a child who has tantrum to gain attention would be taught an appropriate mand for attention. Extinction paired with FCT has been proven to be an effective treatment for a wide range of problem behaviours that differ in function and topography (Kurtz, Boelter, Jarmolowicz, Chin & Hagopian, 2011).

Purpose of Completing a Functional Analysis

Functional analysis focuses on identifying factors that influence the frequency of problem behaviours (Hanley, Iwata & McCord, 2003). According to Hanley, Jin, Vanselow and Hanratty, (2014) functional assessment identifies factors that influence and reinforce the problem behaviour, and is done before developing an intervention. Functional assessment measures usually include both in-direct and direct assessments and an FA. The authors also stated an FA contains at least two conditions; one in which factors that are suspected to influence the problem behaviours are present and the other is a control in which the child is given what they request. Research has proven by determining the function of behavioural problems and developing assessment methods
and interventions based on the function is the most effective (Carr & Durand, 1985). By identifying contingencies that maintain the problem behaviour, the discriminative stimuli and establishing operations can be changed to reduce the problem behaviour (Hanley et al., 2003)

**How to Set Up a Functional Analysis**

Before completing a functional analysis, a descriptive assessment is completed by interviewing the client, parents and others relevant to the individual. Direct observations of the clients should also be done to collect information on antecedents and possible consequences to the problem behaviour. All the information complied during these assessments allow behaviour analysts to develop a hypothesis about possible functions of the behaviours and guide the development of the functional analysis. Standard functional analysis can take many trials. If everything goes as planned the client will respond with the problem behaviour when they experimenter removes the hypothesized contingency.

**Types of Functional Analysis**

Alternating design or multi-element design means each day or session one type of manipulation will be used and the next day or session a different manipulation will be used. This would be continued each day or session a new manipulation would be tested. All the conditions would be alternated over many days and data would be recorded on the frequency of the problem behaviour.

<table>
<thead>
<tr>
<th>Method</th>
<th>Key Feature</th>
<th>Best Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full FA</td>
<td>Repeated measures, multiple test conditions</td>
<td>Few constraints on assessment</td>
</tr>
<tr>
<td>Brief FA</td>
<td>Abbreviated sessions (number and duration)</td>
<td>Limited assessment time</td>
</tr>
<tr>
<td>Single-function test</td>
<td>Test and control for only one function</td>
<td>Specific function suspected</td>
</tr>
<tr>
<td>Alone series</td>
<td>Repeated alone sessions</td>
<td>Automatic reinforcement suspected</td>
</tr>
<tr>
<td>Precursor FA</td>
<td>FA of correlated behaviours</td>
<td>High-risk behaviour</td>
</tr>
<tr>
<td>Latency FA</td>
<td>Sessions terminated after first response</td>
<td>High-risk behaviour</td>
</tr>
<tr>
<td>Trail-based FA</td>
<td>Assessments during ongoing activities</td>
<td>Limited environmental control</td>
</tr>
</tbody>
</table>

During the contingent attention condition whenever the client engages in the problem behaviour attention is given to them, if the behaviour was occurring at high rates during this condition it would suggest the function of the behaviour is to gain attention. In the alone condition the client is observed while alone, there would be low levels of stimulation available. If the behaviour occurred frequently during this condition it would imply the behaviour is occurring due to automatic reinforcement. The free play condition is used for a control for the other conditions because it gives the client what they want, places no demands and provides attention. Throughout the contingent escape condition whenever the client engages in the problem behaviour any demands that where being placed are withheld. If the problem
behaviour occurred frequently during this condition would suggest the function of the behaviour was to escape whatever demand was being placed (Iwata, et al., 1994).

What Kind of Reinforcement is Used with Functional Communication Training
To eliminate the behaviours' maintaining contingency it is effective to use extinction. Extinction is a procedure where the reinforcement that is provided for the problem behaviour, often unintentionally, is stopped to decrease or eliminate the frequency of the problem behaviour. There are three forms of extinction, use of extinction with behaviours maintained by; positive reinforcement, escape reinforcement and automatic reinforcement.

To replace the problem behaviour with an alternative behaviour it is most effective to use differential reinforcement, this is done by only reinforcing appropriate behaviours that you would like to increase and all other behaviours are placed on extinction.

How to Develop a Functional Communication Training Protocol
There are several steps to creating an FCT protocol including:
- Identifying the problem behaviour
- Completing functional behavioural assessments
- Identifying appropriate replacement behaviour
- Designing and implementing data collection
- Manipulate the environment to elicit the problem behaviour
- Plan for generalization
- Prompt learner to use the replacement behaviour
- Place problem behaviours on extinction
- Provide reinforcement
- Shaping the response
- Fade the use of prompts
- Increasing the time between the replacement behaviour and reinforcement
- Monitoring the progress

Identifying problem behaviour
The first step in creating an FCT protocol is identifying the problem behaviour. The problem behaviour could be any inappropriate behaviour that is being reinforced. The problem behaviour should be displayed on a regular basis. Potential problem behaviours could be hitting, yelling, falling on the floor or any other disruptive behaviours.

Completing a functional behavioural assessment
As outlined earlier functional behavioural assessments should include both indirect measures such as interviews and questionnaires and direct assessments such as ABC observations, to create a hypothesis about the function of the interfering behaviour and possible reinforcement. Data collection is an important part of conducting a functional behavioural assessment and is a key component of determining the function of the problem behaviour. There are four function of problem behaviour gaining attention, escape, gaining access to tangibles or acquiring automatic sensory stimuli, it is also possible for a behaviour to be maintained with a combination of these functions. The data collected will also provide information that is important for creating an effective intervention. When creating an intervention, it is important to consider the antecedents and consequences of the problem behaviour, as well the environment where the
behaviour occurs, the people present when it occurs and the frequency and intensity of the interfering behaviour.

**Identifying a replacement behaviour**

A replacement behaviour should allow the learner to access what they want just as easy or easier, then the problem behaviour. If the replacement behaviour is too difficult this provides no incentive for the learner to engage in the behaviour, resulting in the learner using the more efficient problem behaviour. The replacement behaviour must be appropriate for the learner’s skill level. A replacement behaviour can take many forms such as signing, PECS or verbalizations. The replacement behaviour should be easy enough to be taught in a short amount of time and the learner should be able to quickly acquire the behaviour to gain access to a reinforcer.

The replacement behaviour should be appropriate for the learner’s environment for example, it would not be appropriate for a learner to gain attention by yelling somebody’s name, it would be more appropriate for the learner to say excuse me or raise a hand. The replacement behaviour should be understood by many different communication partners. If the replacement behaviour is not understood by others, the person may not respond accordingly and the learner may continue to use the problem behaviour. It is important to make sure that the replacement behaviour is clear, for example a learner may not be able to clearly say I need help please, and this could to a delay in reinforcement as the communication partner is not able to understand what is being said. Teaching the child to say help, may be more easily understood by others, leading to more immediate reinforcement.

It may be needed to include a behaviour to gain the attention of the communication partner into the replacement behaviour. This could be done by teaching the learner to say excuse me, waiting for the attention of the communication partner, then displaying the replacement behaviour such as saying help. For non-verbal learners it could be done by touching the communication partner on the arm then signing or handing them a PEC.

**Creating and implementing data collection**

Data should be collected on the same problem behaviour as the functional assessments to monitor the learners progress. The data collection procedures should be meaningful, easy to interpret and available to all members of the team. Data should be collected before functional communication training begins and throughout the implementation of functional communication training. Data collection should focus on antecedents, prompts needed, frequency of the replacement behaviour, frequency of problem behaviour, and consequences of the behaviour.
The following is an example of a data collection sheet.

### Example Data Sheet

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Replacement Behaviour</strong></td>
<td>P</td>
<td>I</td>
<td>P</td>
<td>I</td>
<td>P</td>
<td>P I</td>
</tr>
<tr>
<td><strong>Tolerance Response</strong></td>
<td>P</td>
<td>I</td>
<td>P</td>
<td>I</td>
<td>P</td>
<td>P I</td>
</tr>
<tr>
<td><strong>Mand</strong></td>
<td>P</td>
<td>I</td>
<td>P</td>
<td>I</td>
<td>P</td>
<td>P I</td>
</tr>
<tr>
<td><strong>Eye Contact</strong></td>
<td>P</td>
<td>I</td>
<td>P</td>
<td>I</td>
<td>P</td>
<td>P I</td>
</tr>
</tbody>
</table>

| Compliance                |   |   |   |   |   |       |
| Problem Behaviours in FCT |   |   |   |   |   |       |
| Problem Behaviour in Reinforcement |   |   |   |   |   |       |

<table>
<thead>
<tr>
<th>Problem Behaviours in FCT</th>
<th>Total:</th>
</tr>
</thead>
</table>

Replacement Behaviour: ____%  Tolerance Response: ____%  Mand: ____%
Eye Contact: ____%  Compliance: ____%  Rate of PB/min in FCT: ______
Rate of PB in Reinforcement: ______  Total Rate of PB/min: ______

Data collection is used to determine if the problem behaviour is decreasing and if the FCR is being used independently. Data can also be used to determine overall progress of the learner and the consistency of the behaviour. It allows members of a learner’s team to determine the number of needed prompts to use the replacement behaviour. Data collection allows for the progress of the learner to be monitored. It also allows for assessment of the effectiveness of functional communication training and determine if aspects of the functional communication training protocol require changes.

If the data concludes that the learner continues to engage in the problem behaviour, requires extensive prompting to use the replacement behaviour or is having trouble generalizing the use of the replacement behaviour. It may be an indicator that the
FCT protocol may need to be altered. The following questions can be helpful for problem solving:
1. Was the function of the behaviour been identified correctly?
2. Was the communicative act serving as a replacement for the behaviour?
3. Was the replacement behaviour effective, appropriate and understandable?
4. Where instructions provided in the environment that the problem behaviour usually occurs?
5. Where the instruction given in a variety of environments and with different people?
6. Was the prompt being used appropriate for the learner?
7. Was reinforcement provided reinforcement quickly and consistently?
8. Was the interfering behaviour, if displayed, not reinforced or made less efficient?

**Manipulating the environment to elicit the interfering behaviour**

Next the environment is manipulated using materials and activities to evoke the problem behaviour. This provides the learner with many opportunities to practice using the replacement. The functional behavioural assessment provides information about the environment where the problem behaviour is most likely to occur. For example, if a learner screams whenever they are presented with a colouring task during the functional behavioural assessment, this would be a good environment to teach the replacement behaviour.

**Planning opportunities for generalization**

The importance of generalization is so learners can practice replacement behaviours in a variety of settings with different people. This allows the learner to become accustomed to interacting with multiple different people. Different environments could be different areas of a school, agency, or home. It is important to train anyone who communicates with the learner to respond to the use of the learner’s replacement behaviour.

**Prompting learners to use replacement behaviour**

Using prompting procedures to assist the learner to use the replacement behaviour when appropriate is the next step. The prompt used will differ from learner to learner depending on their abilities. When prompting the learner to use the replacement behaviour it is most effective to start with a prompt that ensures the correct response is emitted. This increases the use of the replacement behaviour. As with all prompting procedures the goal is to help the learner emit the correct response. This may require a higher leveling of prompting or a prompt that is more intrusive to guarantee that the replacement behaviour is used and not the problem behaviour. The goal is to slowly and systematically fade to a less intrusive prompting until no prompt is needed to ensure the use of the replacement behaviour. The level of prompting needed will differ learner to learner. For example, some learners may be able to use the replacement behaviour with only a gestural prompt, others may need a physical prompt or an echoic prompt.

**Extinction**

Reinforcement should not be provided for the problem behaviour. To not accidentally reinforce dangerous behaviours and subtle communicative acts, the consequences of the behaviour can be altered to decrease the effectiveness and efficiency of the problem behaviour. It is key that no instance of the problem behaviour is reinforced if possible. If the problem behaviour is dangerous it is recommended that you intervene...
as little as possible, while ensuring the safety of all. The goal is make the problem behaviour less effective than the replacement behaviour.

This can be done by,

a) Pause after the learner engages in the problem behaviour
b) Prompt the learner immediately to use the replacement behaviour, and
c) Provide reinforcement for using the replacement behaviour.

Not providing reinforcement after the problem behaviour makes it much efficient than the replacement reinforcement.

Providing reinforcement
It is essential that reinforcement for the replacement behaviour is given quickly and consistently. When the learner is first learning the replacement behaviour it is key that any communicative partner responds quickly and consistently. If a learner is not provided with quick and consist reinforcement they want, the problem behaviour may not decrease, and the replacement behaviour may not be acquired.

Shaping the replacement behaviour
The next area to focus on is shaping the learner’s responses into more complex communication. Beginning with any approximation of the replacement behaviour would be accepted. The replacement behaviour may be imperfect to begin with. For example, a learner may be taught to say, “I need help”. When this response is first taught the learner may just say “help”. Initially this would be reinforced. The response will be shaped by prompting closer approximations of the replacement behaviour and reinforcing. As functional communication training continues closer approximations of the response will be required. The replacement behaviour may need to be changed if even with opportunities for shaping the learner is not able to produce the replacement behaviour accurately.

Fading the use of prompts
Prompts need to be faded out so that learners can become independent in using the replacement behaviour. Prompts are slowly faded out by analyzing data. Prompts can be faded by using less intrusive prompts or adding time delays. For example, a child who requires an echoic prompt, the less intrusive prompt would be a partial echoic. Time delay is a way of identifying the type of prompt the learner may require. When a less intrusive prompt is given, wait and see what the learner does. It is important to wait long enough to provide the learner with the opportunity to display the replacement behaviour, the amount of time needed will differ learner to learner. Intervene with a more intrusive prompt if seems like the learner will engage in the problem behaviour.

Increasing the time between the replacement behaviour and reinforcement
According to Ghaemmaghami, Hanley and Jessel, (2016) a key component of generalizing FCT is thinning the reinforcement schedule until it resembles a typical environment for the child. The authors stated common procedure to increase the delay between the functional communication response (FCR) and the reinforcer is creating a delay schedule. Many schedules include a response requirement, meaning a specific number of demands or time completing a work activity, that are engaged in after the FCR is emitted, and upon the completion of the depends the child is then provided with reinforcement (Ghaemmaghami, et al., 2016). Once an FCR is taught FCT also teaches
tolerance by not honoring every request for reinforcement, over time the time between
the FCR and delivery of reinforcement is increased.
In learner’s natural environment it is not realistic for reinforcement to always be provided
immediately after the replacement behaviour. Therefore, it is important to slowly and
systematically increase the amount of between replacement behaviour and
reinforcement. It is important to consult with a learner’s entire team to determine a
reasonable amount of time for the learner to wait in between the replacement behaviour
and reinforcement. It can also be useful to increase the distance between the learner
and communicative partner. This helps a learner learn to seek out communicative
partners before engaging in the replacement behaviour. After a learner can engage in
the replacement independently and consistently a tolerance response should be taught,
this can be as simply of teaching a learner to say “okay” when you say no. When
teaching a tolerance response, you should alternate between no delay, and delay zeros.
No delay trials are when you reinforce immediately or “say yes”. Delay zero trials are
when you say no and after the learner displays the tolerance response you immediately
reinforce or “change your mind”. Once a learner can independently display the tolerance
response during delay zero trials, further delays are introduced. During the trials you
say no the time between the replacement behaviour and reinforcement can be
increased by placing demands, the type of demands will differ learner to learner. The
time can be based on a specific number of demands that need to be placed or a specific
interval of time. Once a learner masters a specific number of demands, the number will
be increased. The number of demands will continue to be increased until the desired
level of delay is achieved.

**Monitoring the progress of the learner**

Data needs to continue to be collected about the learners’ use of the replacement
behaviour as it will direct decisions about what prompting and reinforcement procedures
are being effective. The data should show the learners use of the replacement
behaviour in different environments, different people, and the type and intensity of
prompt needed to engage in the replacement behaviour correctly. Once prompts are
faded and a learner can engage in the replacement behaviour independently, the data
are used to determine if independent use of the replacement behaviour is generalized
across environments and people. Data are also used to make instructional decisions. It
can show if a specific task or time of day that requires more prompting or there is more
problem behaviour present. Data can also show if there are specific staff members that
needs to prompt more then another or has more problem behaviour this could indicate
that reinforcement is not being provided quickly enough or not consistently with
reinforcement. It is also important to record the type of prompt being delivered and in
case it is not effective. This could indicate a different prompt would be more effective.

**Role Plays**

Role plays are an effective way to practice needed FCT before facilitating a session with
a learner. It is recommended the role plays are done in groups of three, one person to
act as the facilitator, one to act as the learner, and someone to collect data. Below are
some scenarios, you can create an FCT protocol and practice your implementation
skills.
**Liam**
Liam is a 6-year-old boy. Liam will have tantrums when toys or other objects are taken away from him. His tantrums often include screaming, and flopping onto the floor. Sometimes his tantrums will include kicking or hitting to the person who took the object away. Liam will often yell the name of what he wants. Liam has a well-developed vocabulary. An FA was completed and the function of the behaviour was determined to be access to tangible items.

**Amy**
Amy is 10 and has high functioning ASD. She is highly verbal and does well in school. But, lately Amy has been displaying some interfering behaviours. These behaviours included banging her hands on the desk and humming during math class. Her teacher is frustrated because it is disturbing the class and Amy is hurting her hands. The teacher as a consequence is sending Amy to the principal’s office when she engages in these behaviours. Amy’s team did functional behavioural assessments and determined that these behaviours always occur when group work is schedule, and the function of the behaviour is to avoid the group work.
References


Appendix E

Workshop Layout

- Introduction
  o During the introduction the purpose of the workshop should be explained. It is also suggested that you tell the participants that the workshop will follow a behavioural skills training model and that the model includes the use of role plays. Next explain that the pre- and post test are only being used to evaluate the effectiveness of the training manual and workshop, it will in no way effect their employment or grades if they are a student. Next assign everyone a number to put on their pre- and post test so the test can be compared. Explain to the participants that they will be given a case study for the role play. During the role play they will be required to create a FCT protocol, including choosing replacement behaviour, the structure of the session and type of reinforcement used. Once they have created their FCT protocol they will be required to role play a FCT session with a partner of their choosing.

  o Hand out the pre-test and explain again to the participants to answer the best they can, the purpose of the test is to evaluate the effectiveness of the workshop. Remind everyone to put their assigned number on their test.

- Provide case study
  o Liam is a 6-year-old boy. Liam will have tantrums when toys or other objects are taken away from him. His tantrums often include screaming, and flopping onto the floor. Sometimes his tantrums will include kicking or hitting to the person who took the object away. Liam will often yell the name of what he wants. Liam has a well-developed vocabulary. An FA was completed and the function of the behaviour was determined to be access to tangible items.

- Role play
  o Once the case study has been given. Inform the participants that it is now time to do the role play. Let everyone know that you will be circulating around the room but will not be providing feedback now. The point of the role plays now is to assess your skills before receiving information about FCT. During this time a small number of participants should be chosen randomly and data should be collected using the Implementation Checklist for Functional Communication Training. The participants should be in groups of three, one person to act as the FCT facilitator, one the learner and one person to collect data.

- PowerPoint presentation and Question
  o Provide the information in the PowerPoint slide show, it may also be helpful to have a copy of the training manual with you.

- Modelled Role play
  o A modelled role play should be done now. The modelled role play could be done live with another person or could be pre-recorded and shown as a video.

- Second Role play
o Inform everyone now that the second role play will be done now. Inform them that during this role play you will be providing immediate verbal feedback as you circulate the room. Data should be collected again using the same checklist and participants. Also inform everyone that once everyone has been given adequate time to reach the mastery criterion (80-100% of the implementation checklist), a group discussion will take place to talk about different protocols would work best and why. Allowing for another chance for feedback.

- Post-test.
  o Remind participants to put their assigned number at the top of their post-test so results from the pre- and post test can be compared.

- Questions
  o Allot extra time towards the end of the workshop to answer any questions.
  o Also state at the end of the workshop that FCT and FAs should be done under the supervision of a BCBA or someone well training until the person is proficient at FCT and FAs.

Below is the pre-and post test, implementation checklist and photos of the PowerPoint presentation.
Pre-and Post Test for FCT Knowledge and Application
1. Before implementing FCT it is important to complete a functional analysis.
   c) True
d) False

2. The learner should be punished for engaging in interfering behaviours during FCT.
   c) True
d) False

3. In the first stages of FCT, how should reinforcement be provided when the learners use the replacement communicative behaviour.
   e) On a variable schedule
   f) On a fixed ratio schedule
g) Consistently
   h) Immediately and consistently

4. When using errorless teaching, you should use:
   e) No prompts
   f) The most intrusive prompt tolerated by the learner.
g) A prompt that usually results in the learner using the replacement behaviour
   h) A prompt that always results in the learner using the replacement behaviour.

5. It is important to slowly___________the time between the replacement behaviour and the delivery of reinforcement.
   d) Increase
e) Decrease
   f) Neither increase or decrease

6. When choosing a replacement behaviour, it is important the behaviour:
   f) Serves the same function as the problem behaviour
g) Recognizable by most people
   h) Taught in a small amount of time
   i) Both a and b
   j) All of the above

7. Data collection should focus on
   e) Frequency of the replacement behaviour
   f) Prompts required to produce the replacement behaviour
g) Frequency of any problem behaviours
h) Both a and b

8. FCT teaches:
   d) Sign language
   e) PECS
   f) A replacement behaviour that serves the same function as the problem behaviour.

9. FCT is only used for major interfering behaviours.
   c) True
   d) False

10. Teaching a child to ask for attention would be an appropriate replacement behaviour for someone who has tantrums when a teacher is helping other children.
    c) True
    d) False
Implementation Checklist for Functional Communication Training

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<table>
<thead>
<tr>
<th></th>
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<th></th>
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<tbody>
<tr>
<td>11.</td>
<td>Was the alternative behaviour functional matched?</td>
<td>Y</td>
</tr>
<tr>
<td>12.</td>
<td>Was the selected form of communication appropriate for the learner?</td>
<td>Y</td>
</tr>
<tr>
<td>13.</td>
<td>Can the replacement behaviour be emitted quickly?</td>
<td>Y</td>
</tr>
<tr>
<td>14.</td>
<td>Was there varied vocabulary when placing demands?</td>
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</tr>
<tr>
<td>15.</td>
<td>Was interfering behaviour not reinforced?</td>
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</tr>
<tr>
<td>16.</td>
<td>Was the learner prompted using errorless learning?</td>
<td>Y</td>
</tr>
<tr>
<td>17.</td>
<td>Did the learner need to mand for the reinforcement?</td>
<td>Y</td>
</tr>
<tr>
<td>18.</td>
<td>Was the learner reinforced for using the replacement behaviour?</td>
<td>Y</td>
</tr>
<tr>
<td>19.</td>
<td>Was the length between the replacement behaviour and reinforcement slowly increased?</td>
<td>Y</td>
</tr>
<tr>
<td>20.</td>
<td>Was behaviour specific praise used?</td>
<td>Y</td>
</tr>
</tbody>
</table>
What is Functional Communication Training

- Functional communication training (FCT) is a widely used and effective procedure for managing difficult behaviour problems.
- FCT teaches a functional communicative response (FCR) that is maintained by a reinforcer with the same function as the problem behaviour.
- FCT is often packaged with the following three stages, functional analysis (FA), teaching a socially relevant response and generalizing across people and settings.
- FCT is individualized to each child’s individual needs and abilities by using a functional analysis (FA) to determine the function of the behaviour.
Why Functional Communication Training is used

- Children with autism can have problems with all parts of communication.
- Due to their communication deficits, children with autism will often engage in problem behaviours.
- Behavioural problems will often decrease by teaching a child a communicative response that alters the conditions that serve as a function to the behaviour.
- FCT provides a child an appropriate way of expressing a need.
- FCT is the most used procedure for replacing a problem behaviour with a socially acceptable alternative response.

Purpose of Completing a Functional Analysis

- Functional assessment is a process with the goal of identifying factors that influence the problem behaviour, and are done before developing an intervention.
- Functional assessments usually include both in-direct and direct assessments and an FA.
- An FA contains at least two conditions.
### How to Set Up a Functional Analysis

- Before completing a functional analysis, descriptive assessments done by interviewing the client, parents and others, direct observations of the clients are also done.

- All the information complied during these assessments allow behaviour analysts to develop a hypothesis about possible functions of the behaviours and guide the development of the functional analysis.

- Standard functional analysis can take many trials, if everything goes as planned the client will respond with the problem behaviour when they experimenter removes the hypothesized contingency.
<table>
<thead>
<tr>
<th>Method</th>
<th>Key Feature</th>
<th>Best Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full FA</td>
<td>Repeated measures, multiple test conditions</td>
<td>Few constraints on assessment</td>
</tr>
<tr>
<td>Brief FA</td>
<td>Abbreviated sessions (number and duration)</td>
<td>Limited assessment time</td>
</tr>
<tr>
<td>Single-function test</td>
<td>Test and control for only one function</td>
<td>Specific function suspected</td>
</tr>
<tr>
<td>Alone series</td>
<td>Repeated alone sessions</td>
<td>Automatic reinforcement suspected</td>
</tr>
<tr>
<td>Precursor FA</td>
<td>FA of correlated behaviours</td>
<td>High-risk behaviour</td>
</tr>
<tr>
<td>Latency FA</td>
<td>Sessions terminated after first response</td>
<td>High-risk behaviour</td>
</tr>
<tr>
<td>Trail-based FA</td>
<td>Assessments during ongoing</td>
<td>Limited environmental control</td>
</tr>
</tbody>
</table>

What Kind of Reinforcement is Used with Functional Communication Training

- Extinction is a procedure where the reinforcement that is provided for the problem behaviour is stopped.
- To decrease or eliminate the frequency of the problem behaviour
- To replace the problem behaviour with an alternative behaviour it is effective to use differential reinforcement.
- This is done by only reinforcing appropriate behaviours that you would like to increase and all other behaviours are placed on extinction.
How to Develop a Functional Communication Training Protocol

- FCT is comprised of many different parts
- Begins with a functional assessment to determine the function of the behaviour
- Teach the FCR, once the FCR is learned a tolerance response is taught.

There are several steps to creating an FCT protocol including:

- Identifying the problem behaviour
- Completing functional behavioural assessments
- Identifying appropriate replacement behaviour
- Designing and implementing data collection
- Manipulate the environment to elicit the problem behaviour
- Plan for generalization
- Prompt learner to use the replacement behaviour
- Place problem behaviours on extinction
- Provide reinforcement
- Shaping the response
- Fade the use of prompts
- Increasing the time between the replacement behaviour and reinforcement
- Monitoring the progress
Identifying problem behaviour

- The first step in creating an FCT protocol is identifying the problem behaviour.
- The problem behaviour should be displayed on a regular basis.
- Potential problem behaviours could be hitting, yelling, falling on the floor or any other disruptive behaviours.

Completing a functional behavioural assessment

- Functional behavioural assessments should include both indirect measures.
- Data collection is an important part of conducting a functional behavioural assessment and is a key component of determining the function of the problem behaviour.
- The function of the problem behaviour will most likely be gaining attention, escape, gaining access to tangibles or acquiring automatic sensory stimuli.
- The data collected will also provide information that is important for creating an effective intervention.
Identifying a replacement behaviour

- A replacement behaviour should allow the learner to access what they want just as easy or easier, then the problem behaviour.
- If the replacement behaviour is too difficult this provide no incentive for the learner to engage in the behaviour, resulting in the learner using the more efficient problem behaviour.
- The replacement behaviour must be appropriate for the learner, a replacement behaviour can take many forms such as signing, PECS or verbalizations.
- The replacement behaviour should be easy enough to be taught in a short amount of time and the learner should be able to quickly acquire the behaviour to gain access to a reinforcer.

Creating and implementing data collection

- The data collection procedures should be functional, meaningful and available to all members of the team.
- Data should be collected before functional communication training begins and throughout the implementation of functional communication training.
Data Collection

- Data collection is used to determine if the problem is decreasing and the FCR is being used independently.
- Data can also be used to determine overall progress of the learner and the consistency of the FCR.
- Data collection allows for the progress of the learner to be monitored and the effectiveness of FCT to determine if aspects of the functional communication training protocol needs to be changed.
Manipulating the environment to elicit the interfering behaviour

- The environment is manipulated using materials and activities to elicit the problem behaviour.
- The functional behavioural assessment provides information about the environment where the problem behaviour is most likely to occur.

Planning opportunities for generalization

- The importance of generalization is so learners can practice replacement behaviours in a variety of settings with different people.
- This allows the learner to become accustomed to interacting with multiple different people.
- Different environments could be different areas of a school, agency, or home.
- It is important to train anyone who communicates with the learner to respond to the use of the learner's replacement behaviour.
**Prompting learners to use replacement behaviour**

- Using prompting procedures to assist the learner in use the replacement behaviour when appropriate is the next step. The prompt used will differ from learner to learner depending on their abilities.
- When prompting the learner to use the replacement behaviour it is most effective to start with a prompt that ensures a correct response. This guarantees the use of the replacement behaviour.
- A higher leveling of prompting or a prompt that is more intrusive may be needed to guarantee that the replacement behaviour is used.
- The goal is to slowly and systematically fade to a less intrusive prompting until no prompt is needed to ensure the use of the replacement behaviour.

**Not reinforcing the problem behaviour**

- Reinforcement should not be provided for the problem behaviour.
- To decrease dangerous behaviours and subtle communicative acts, the reaction to the behaviour can be altered to decrease the effectiveness and efficiency of the problem behaviour.
- If the problem behaviour is dangerous it is recommended that you intervene only to ensure the safety of all involved.
- Not providing reinforcement after the problem behaviour makes it much efficient than the replacement reinforcement.
Providing reinforcement

- It is essential that reinforcement for the replacement behaviour is given quickly and consistently.
- When the learner is first learning the replacement behaviour it is key that any communicative partner responds quickly and consistently.
- If a learner is not provided with quick and consistent reinforcement the problem behaviour will not decrease, and the replacement behaviour will not be used.

Shaping the replacement behaviour

- To begin any approximation of the replacement behaviour would be accepted. The replacement behaviour may be imperfect.
- The response will be shaped by prompting closer approximations of the replacement behaviour and reinforcing the response.
- As functional communication training continues closer approximations of the response will be required.
- The replacement behaviour may need to be changed if even with opportunities for shaping the learner is not able to produce the replacement behaviour accurately.
Fading the use of prompts

- Prompts need to be faded out so that learners can become independent in using the replacement behaviour. Prompts are slowly faded out by analyzing data.
- Prompts can be faded by using less intrusive prompts or adding time delays. Time delay is a way of identifying the type of prompt the learner may require.

Increasing the time between the replacement behaviour and reinforcement

- In learner’s natural environment it is not realistic for reinforcement to always be provided immediately after the replacement behaviour.
- It is important to consult with a learner’s entire team to determine a reasonable amount of time for the learner to wait in between the replacement behaviour and reinforcement.
- It can also be useful to increase the distance between the learner and communicative partner. This helps a learner learn to seek out communicative partners before engaging in the replacement behaviour.
Tolerance Response

- After a learner can engage in the replacement independently and consistently a tolerance response should be taught, this can be as simply of teaching a learner to say “okay” when you say no.
- When teaching a tolerance response, you should alternate between no delays and delay zeros.
- Once a learner can independently display the tolerance response during delay zero trials, further delays are introduced.
- Once a learner masters a specific number of demands, the number will be increase. The number of demands will continue to be increased until the desired level of delay is achieved.

Monitoring the progress of the learner

- Data needs to continue to be collected about the use of replacement behaviour.
- The data should show the learners use of the replacement behaviour in different environments, different people, the type and intensity of prompt needed to engage in the replacement behaviour correctly.
- Once prompts are faded and a learner can engage in the replacement behaviour independently, the data is used to determine if independent use of the replacement behaviour is generalized across environments and people.