Running head: BEHAVIOURAL SKILLS TRAINING TO IMPROVE JOB KNOWLEDGE

Using Behavioural Skills Training to Improve Job-Related Knowledge in Staff
by
Danielle Poirier-Froats

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

St. Lawrence College
Kingston, Ontario
Canada

January 2018

The procedures in staff training workshop are meant to be used by agency staff, as part of the broader services they provide, or under supervision of agency staff.
Dedication

To my poppa, who has always been my proud supporter; the one who never tires of my reading my report cards, and the one who consistently encourages me to continue with my education and that one day it will pay off. Thank you for always believing in me to do my best and I hope that one day I will be able to do the same for my children and grandchildren. Love you to the moon and back.

To the rest of my family, thank you for always listening to all my stress induced talks, assisting me with all my word blocks and brain farts, and most importantly, having my back and reassuring me that all my hard work will be recognized. Thank you, it was much appreciated. Love you all.
Abstract

Maintaining the most current forms of practice is important to staff members in order to maximize the effectiveness of their implementation of behavioural programs. This study examines if delivering a workshop using a Behavioural Skills Training (BST) model would be more effective than using workshop literature paired with a lecture on material alone. The workshop literature defines and explains five ABA principles and concepts; reinforcement, motivational operations, differential reinforcement, punishment, and antecedent control procedures. The current study reviewed previous research on BST and the four components to make up the model; instruction, modelling, rehearsal, and feedback. Two groups were offered the same workshop material, with one group receiving BST training to determine if BST would improve the pre- and posttest scores over the control group. The staff that received the instructional material and lecture only format yielded a higher posttest average than the experimental group, which received the BST model. Limitations are explored such as; difference in training environments, training times, instructional components, prior participant knowledge, and as well as time constraints. The workshop literature and training techniques used provided a refresher on job-related knowledge in staff. Although the results of this study concluded that the workshop material and lecture alone format were enough to improve scores, the author identifies many factors that may have impacted the scores and potentially decreased the effectiveness of BST. Other workplace environments can benefit from using a BST model when training staff members as it provides visual models of the skills, the ability to rehearse each skill, and opportunities to receive feedback on the rehearsal of the skills. Possible areas for future research are also explored to add to the literature of BST and employee training.
Caelah Devlin
Firstly, I would like to give special thanks to my college supervisor, Caelah Devlin, for her much needed enthusiasm, consistent patience, and undeniable support during this process. Her knowledge and drive in Behavioural Skills Training was a huge benefactor in the creation of this thesis. Thank you for being the calm in the thesis writing storm, it was very much appreciated. Thank you.

CHEO Autism Program Staff
I would like to thank CHEO Autism Program Staff for their patience and guidance in the process of creating my thesis. I would like to thank Lysanne Ladouceur who advocated for me to get all the experiences available to me, as well as the remaining staff members for allowing me the opportunity to observe and participate in their day to day experiences. Without these women, I would not have had such an amazing experience. The intelligent women at CHEO: Autism Program have set a concrete example for me and I have never been so grateful.

Family & Friends
Lastly, I would like to give many thanks to my family and friends who have been there since the beginning. You all have witnessed my downfalls and my triumphs but remained supportive throughout my entire journey. I am beyond thankful for all the kind words of wisdom and advice given to me over the course of the last four years. I love you all very much.
# Table of Contents

Dedication .................................................................................................................. ii
Abstract .................................................................................................................... iii
Acknowledgements .................................................................................................. iv
Table of Contents .................................................................................................... v
List of Tables ........................................................................................................... vii

Chapter I: Introduction ......................................................................................... 1
Overview ................................................................................................................... 2

Chapter II: Literature Review .............................................................................. 3
Behavioural Skills Training (BST) ........................................................................... 4
Behavioural Skills Training in Behavioural Psychology .......................................... 6
Summary .................................................................................................................. 7

Chapter III: Methodology ..................................................................................... 9
Participants .............................................................................................................. 9
Selection procedures and consent ........................................................................... 9
Design .................................................................................................................... 9
Training workshop literature only .......................................................................... 9
Training workshop literature using BST model ....................................................... 9
Research design ..................................................................................................... 10
Setting and Apparatus ........................................................................................... 10
Materials ............................................................................................................... 10
Measures .............................................................................................................. 10
Procedures ............................................................................................................ 10
Experimental group ............................................................................................... 11
Control group ........................................................................................................ 12

Chapter IV: Results ............................................................................................. 13
Pre- and Posttest Questionnaire Test Results ......................................................... 13
Workshop training without BST .......................................................................... 13
Workshop training through BST .......................................................................... 13
Changes to Literature and PowerPoint .................................................................. 14
Final Products ......................................................................................................... 14

Chapter V: Discussion ......................................................................................... 16
Overview .............................................................................................................. 16
Strengths ............................................................................................................... 16
Limitations ............................................................................................................ 16
Instruction delivery ............................................................................................... 16
Prior knowledge of participants ........................................................................... 17
Time constraints ................................................................................................... 17
Timing of trainings ............................................................................................... 17
Training environments ......................................................................................... 18
Contributions to Behavioural Psychology Field .................................................. 18
Multilevel Challenges ......................................................................................... 19
Client level ........................................................................................................... 19
Program level ....................................................................................................... 19
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Societal level</td>
<td>19</td>
</tr>
<tr>
<td>Associated Challenges</td>
<td>19</td>
</tr>
<tr>
<td>Ethical concerns</td>
<td>20</td>
</tr>
<tr>
<td>Training implementation</td>
<td>20</td>
</tr>
<tr>
<td>Recommendations for Future Research</td>
<td>20</td>
</tr>
<tr>
<td>References</td>
<td>21</td>
</tr>
<tr>
<td>Appendix A: Sample of Informed Consent</td>
<td>23</td>
</tr>
<tr>
<td>Appendix B: Sample of Consent for Use of Agency Name</td>
<td>26</td>
</tr>
<tr>
<td>Appendix C: Sample of Pre-and Posttest Questionnaire</td>
<td>27</td>
</tr>
<tr>
<td>Appendix D: Workshop Literature</td>
<td>30</td>
</tr>
<tr>
<td>Appendix E: PowerPoint Presentation of Workshop Literature</td>
<td>47</td>
</tr>
</tbody>
</table>
List of Tables
Table 1: Percentage of Correct Responses in Control Group ..................13
Table 2: Measures of Central Tendency in Control Group ......................13
Table 3: Percentage of Correct Responses in Experimental Group ..........14
Table 4: Measures of Central Tendency in Experimental Group ............14
Chapter I: Introduction

Refreshing knowledge can improve the job-performance of staff members in a variety of different working environments. It is important that staff members or employees maintain the most current forms of practice to maximize effectiveness of their work. Using a BST model to improve job-related knowledge can be a beneficial in many types of professions. Training employees with the BST model can help with the retention of job-related knowledge resulting in improvements in job performance.

Behavioural Skills Training (BST) is a method for training individuals in a certain set of skills (Sawyer et al., 2017). Improving work skills is beneficial to the employees and the recipients of their work. Training is important due to individuals having the ability to stray from previous training received and adapting principles or concepts where needed. Training needs to be current and frequent to allow for the best service for clients. Miller, Crosland, Hewitt, and Clark (2014) demonstrated that the skills taught in training will help increase staff interactions, which in turn, increases the opportunities for staff to exchange effective methods and techniques. This exchange can create a positive effect on the staffs’ environment and employee morale. BST is important to training because it helps supports the correct implementation of principles and concepts taught as it allows for immediate feedback on the use of such skills. Love, Carr, Leblanc, and Kisamore (2013) state that a BST model provides the instructor with an opportunity to physically demonstrate (model) what is expected from the training.

In the present study, the BST model will be explained and examined through a literature review. The literature review will outline how the BST model has led to increased levels of correct performances compared to other Evidence Based Practices (EBPs) (Fetherston & Sturmey, 2014). The literature review will also outline the positive effects that the BST model has on large group training (Love et al., 2013). The methodology section of this paper outlines the implementation of a BST program with a large group, including participant selection and training steps. The methodology will then continue to detail about the two different training groups, the experimental and control group.

Miller et al. (2014) states that the BST model is based on four main stages of training. Those four stages are: instructions, modelling, rehearsal, and feedback. Instruction, the first stage of BST, is the lesson taught on specific behaviours or concepts (e.g. giving specific prompts). Following the instruction stage is the modelling component. This is when the instructions are modelled by the instructor (Love et al., 2013). The third stage, the rehearsal step, is where participants are given opportunities to practice the modelled skills (Love et al., 2013). The final step of the BST model, the feedback stage involves the use of positive reinforcement for accurate skill demonstration and corrective feedback is provided for incorrect responses (Love et al., 2013). The methodology of the study will outline important information involving the participants and selection procedures, setting, and the overall design of the study.

The final two chapters, results and discussion, will be displayed and discussed the results to determine if the intervention results from the experimental group, group receiving BST, show a more effective treatment then the control group, the group receiving training literature alone. The discussion section, will summarize the results from the intervention, limitations, ethical concerns, and challenges as well as future implications for research.
Overview

The purpose of this study is to determine if using a BST model to implement a refresher training on ABA principles and procedures will be effective to increase job-related performance of staff, as compared to a training which includes an instruction phase alone. The research question thus would be if using a BST approach to train staff would be more effective at improving job-related knowledge for staff employed in an ABA-based agency, relative to a staff training using instruction/lecture format alone.
Chapter II: Literature Review

Hogan, Knez, and Kahng (2015) claim that there is a lack of attention when evaluating the program integrity when implement behaviour plans. This lack of attention is a serious issue as procedural integrity is crucial to the development of clients’ skills and abilities in day-to-day life. Willems et al. (2016) stated that those working with most severely affected clients require additional training and support to be effective (as cited in van Oorsouw, Embregts, Bosman, & Jahoda, 2009). Macurik, O’Kane, Malanga, and Reid (2008) compared video and live training with staff on the implementation of intervention plans for individuals with disabilities. The first group of participants received video training by watching a video describing the intervention plan accompanied by bullet points consisting of key information. The second group of participants received live training sessions from a behavior analyst verbally explaining the same intervention plan. The results indicated that both types of training, video and live training, were effective (Macurik et al., 2008); although, in terms of efficiency, the video training was deemed more time efficient for training (although additional time is needed for preparation). The authors provide suggestions regarding the use of video training, specifically that this strategy may be used when preparation time is available for the creation of the training videos, and if an instructor is unable to present the training in a live format (Macurik et al., 2008). It was concluded that live training was slightly more preferred relative to video training, based on the participants ratings, although both methods of training were well received overall (Macurik et al., 2008). Live instructions received a higher participant satisfaction rate, which implies that trainings that include an instructional component can more effective than trainings without, as it is more preferred. It can be suggested that BST would be more effective than video training, as BST is delivered by an individual through verbal instructions delivered via live instructions.

Malakis and Kontogiannis (2012) stated that an on-going training can help prepare individuals with the necessary skills needed. Malakis and Kontogiannis suggest that the skills of applying previous knowledge, displaying confidence in his or her resources, estimating the level of risk and adapting to job demands are more helpful when preparing individuals to best serve clients. Various unforeseen situations can present themselves anytime in many workplace environments such as classrooms or group homes. This is of particular importance when working with clients who have intellectual disabilities and challenging behaviours. Thorough training in basic principles and foundational knowledge can help equip professionals to manage various unforeseen situations in which the environmental can be unpredictable.

Hogan et al., (2015) used BST to improve the implementation of behaviour interventions plans (BIPs) by staff members in nonpublic school settings. All staff members that participated in this study showed improvements in skills and achieved mastery criteria during the last three phases of BST (i.e. modelling, rehearsal, and feedback), demonstrating the effectiveness of the procedures. Hogan et al. state that future research should include data on student outcomes, to help determine whether the staff performance had an influence on students’ behavior. Willems, Embregts, Hendriks, and Bosman (2016) supported the client-staff relationship focus of treatment. The authors determined that training staff on client interactions should focus on the relationship between the staff and the client. The results of this study indicated that less assertive behavior in staff lead to improved interpersonal behaviour in clients with intellectual disabilities and challenging behaviours.
Behavioural Skills Training (BST)

BST has led to increased levels of accurate performance as compared to other Evidence-Based Practices (EBPs) (Fetherston & Sturme, 2014). Behavioural skills training is a data-based training consisting of observational data which are used to demonstrate a set of target skills which trainees develop, to a predetermined mastery criterion (Parsons, Rollyson, & Reid, 2012). Furthermore, Parsons et al. state that the BST model can lead to higher levels of job-related knowledge and that BST is an established method for assisting staff to acquire more efficient skills. Sawyer, Andzik, Kranak, Willke, Curiek, Hensely, and Neef (2017) state; “BST resulted in high levels of accuracy across targeted skills” (p. 298). BST has been designed to help learners achieve an understanding of varying concepts and establish skills useful to those individuals (Miller et al., 2014). Using BST to improve job-related knowledge can benefit staff members in the workplace. Love et al. (2013), explained several benefits when delivering a BST model within a large group compared to individual training. Some of these benefits were the presentation of instructions and the modelling of the skill; this format allowed the participants to observe other group members’ performances throughout the stages of training (as cited by Mitlenberger, 2004). In addition, larger group trainings allow participants the opportunity to participate in more rehearsal and feedback sessions, which has been shown to result in achieving mastery criteria more efficiently.

Nuernberger, Ringdahl, Vargo, Crumpecker and Gunnarsson (2013) compared the results of the use of BST to establish conversation skills between three participants using scores from a predetermined task analysis. The task analysis consisted of 10 separate skills which were individually scored to determine the percentage of accurately implemented steps within a task analysis. When BST was implemented there was an immediate increase in the level of accurate responding to a mean of 90% for each of the three participants’ scores, ranging from 80-100%. The results of this study indicated stable increases in responding after BST for two participants, and variable responding for one participant. The authors state that during the maintenance phase, one week following the last session of BST, participants did not show any overlapping data points. This indicates that all participants scored above mastery criteria 90% in what they described as a ‘re-implemented baseline sessions’. Re-implemented baseline sessions were defined as maintenance sessions, which included the participants the removal of possible feedback and access to preferred items or activities, when instructed to initiate conversation with another peer. The authors conclude that the use of BST paired with a task analysis was effective at teaching conversation skills. This study supports the BST model as an effective way to establish new skills. Nuernberger et al. (2013), also states that future researchers should examine the response maintenance and generalization of such interventions.

In a similar study, Kornacki, Ringdahl, Sjostrom, and Nuernberger evaluated the effectiveness of the use of BST when teaching conversation skills in young adults with Autism Spectrum Disorder and developmental disabilities. The study was conducted to compared the components in a BST model individually to target the acquisition of conversational skills (2013). The authors’ outlined what each component of BST (instruction, modelling, rehearsal, and feedback stages) consisted of and how each component was carried out both separately and collectively. The study shows the significance of how each stage of the BST model is effective. Description of the instruction component was explained as being composed of verbal and written instructions which describe the information needed to acquire the skill being taught. The instruction stage involved the trainer providing the participants with a written handout which was
also verbally explained. Questions were answered after the instruction delivery. The authors explain that the model was broken down into two separate sections, consisting of the first and second stages of the BST model; the instruction and modelling phases. If criterion was not met during the first section, the trainer reviewed the information again. When reviewing the instruction phase the trainer also modelled what the correct and appropriate skill looked like. This continued until the participants met the mastery criteria. The modelling component allowed participants to see a physical example of what the information, taught by the trainer, looked like. By providing the instructional information and the correct physical example, it could be anticipated that the skill acquisition the learners would be expedited. Once the participants met the mastery criterion for the first section, they continued to the rehearsal phase of training. The rehearsal component occurred when the participants physically modelled the skills. Participant questions were addressed during role plays. The authors report that during the BST training the participants rehearsed the skills while the trainer and data collector evaluated the responses and provided feedback accordingly. The final component, feedback, followed the participants’ role plays, allowing the opportunity for constructive feedback. The rehearsal component worked in conjunction with the feedback component, such that corrective feedback was provided until the mastery criterion was met. It can be implied that BST benefits the participants by giving them immediate feedback and allowing for the opportunity to improve with guidance. Kornacki et al., conclude that the BST package, as a whole and in sections, was successful in the improving their teaching ability to train conversation skills to clients (2013). The authors conclude that each participant met the performance criteria with different components of BST in place. One participant met performance criteria during the feedback phase after completing a second rehearsal. Another participant achieved performance criteria during the rehearsal phase, and the final participant met performance criterion during the first feedback phase. This supports the authors’ claim that different components of BST were needed for each participant to become effective in acquiring the improvement of their clients’ conversation skills.

Although Nuerneberger et al. (2013), conclude the BST model was an effective way for teaching skills, Kornacki et al. (2013) demonstrated that there was no specific component of BST which was responsible for the participants’ skill acquisition. In both studies, all participants met the performance criterion within the components of BST, but authors of both studies (Kornacki et al., 2013; Nuernberger et al., 2013) note that the natural environment was a main limitation, as it possesses multiple opportunities for distractions. Within this environment the participants did become distracted, which caused difficulties in accurately scoring the effectiveness of the BST model. Creating a controlled training area may benefit future studies as it would limit the number of uncontrolled variables which can affect the study’s results. Kornacki et al. (2013) and Nuernberger et al. (2013) both conducted trainings within a natural environment using staff who role played as clients; whereas Hogan et al. (2015) conducted trainings within a natural environment using actual clients in vivo with actual client behaviours. “This allowed the participants to be exposed to more naturalistic situations in which the students’ behavior was less predictable or repetitive” (Hogan et al. 2017, p.253). Although the study was conducted in a natural environment, Hogan et al. noted a major limitation during the feedback phase was the lack of opportunities to correct rehearsal errors as they occurred due to the naturalistic setting and use of agency clients, that is, there was no time to pause and rehearse the skill again.

Refresher training using the BST model may seem beneficial for some populations; however Malakis and Kontogiannis (2012) found that using a BST model to refresh previous training of air traffic control workers was not effective. The authors suggest that the training model was
ineffective due to the role plays in the modelling and rehearsal phases were too dissimilar to job-like experiences. (“Operational reality will always contain situations with subtle and infinite variations that will be different from those replicated in training” p. 69). Malakis and Kontogiannis explain that the purpose of the study was not to expect the participants to be trained for everything but to reveal possible vulnerabilities which could be targeted for later training. Although the authors’ study revealed that using BST was not effective, the limitations of their study identified areas for future research such as using real work scenarios for role playing and modelling may assist in better preparing employees for those various unforeseen situations that can occur with clients. This implies that BST may not be effective for all situations, however having current knowledge will benefit individuals in majority of situations.

**Behavioural Skills Training in Behaviour Psychology**

Hogan et al. (2015) states that, “One area that has not received much attention is evaluating school staff’s correct implementation of a behavior intervention plan (BIP)” (p.242). Training individuals in this area of work, using a BST model, allows agencies to review staff members understanding of behavioural programs and implementation of behavioural intervention procedures. When evaluating the improvements in staffs’ performance, Hogan et al. deemed the use of BST effective. Miller et al. (2014), supported this by using a BST model to improve the skills previously taught within prior training. Using a BST model can create a positive effect on the staff environment and improve their performance thereby potentially resulting in an increase in client skills. Fetherston and Sturmey (2014) cite multiple research studies, by Lafaskis and Sturmey, (2007); Ryan, Hemmes, Sturmey, Jacobs, & Grommet, (2007); Seiverling, Pantelides, Ruiz, & Sturmey, (2010), who were trying to replicate the effects of BST for training various skills sets. Fetherston and Sturmey (2013) conducted a two part study to determine if this research could be replicated to improve the skills of trainers when they delivered training. The authors’ hypothesis was that if there was a positive change in the instructor’s behaviour that this could also result in a positive improvement in the learners’ maladaptive behaviour. The authors divided the study into two separate experiments; the first was to assess the generalization of the instructors’ teaching skills prior to the training and the second was to determine if BST was an effective procedure to train staff in using incidental teaching procedures. Fetherston and Sturmey (2014) used two groups divided into instructors and learners, each group consisted of four individuals. The instructor group was evaluated on the ability to deliver the instructions to the learner group in each experiment. In the first experiment, the participants in the learners group were given instructions to physically point to the answer of the instructor’s question (Fetherston & Sturmey, 2014). In the second experiment the participants from the previous learner group became the instructors in the instructor group. This group then used incidental teaching to encourage the new learners to approach certain stimulus that was originally aversive (Fetherston & Sturmey, 2014). Fetherston and Sturmey concluded that the participants in both groups, who had been trained prior to become the trainers, had a higher percentage of correct responses overall compared to the participants who did not get prior training and taught the content for the first time (2014).

A study completed by Sawyer at al. (2017) used several participants to evaluate the effects of a BST model. The participants were special education teachers. The authors evaluated teachers’ performances in multiple EBPs such as; least to most prompting, functional communication training, constant time delay, differential reinforcement of other behavior,
naturalistic intervention, and multiple stimulus without replacement preference assessment, through role playing assessments (the rehearsal portion of a BST). Similar to findings from previously cited studies, Sawyer et al., (2017) study results indicated there was an increase of accuracy in responses when accessing the performance skills trained using BST. The results of Sawyer et al.’s (2017) study concluded that the instruction portion was a more effective course of training when used in combination with BST rather than traditional studying behaviours (e.g., answering questions with pencil and paper). They also concluded that there were higher levels of accuracy in performance skills with the use of BST, which led to higher performance accuracy across all other EBPS confirming the study’s hypothesis. This signifies that when a training is implemented using BST, it is more likely to be effective than training using a traditional study technique. Although Sawyer et al. (2017) concluded that using BST to train is beneficial for individuals, they also note that role plays may not fully prepare individuals for natural situations, thereby potentially limiting the generalization of skills to novel situations. Nuernberger et al. (2013) and Kornacki et al (2013) both discussed having naturalistic situations, rather than hypothetical situations, during the rehearsal phase would enhance the effectiveness of BST. Sawyer et al, discuss that time was a limitation in determining effectiveness, as participants did not have enough time to fully rehearse each skill until mastery. Sawyer et al., mentioned future research should evaluate the capabilities of a BST model and increase its use to a larger scale to include other teaching components and the ability for repetition. In addition, examining the effects of the study involving a larger participant group or having a multiple baseline design was suggested, to help limit other variables which could have impacted the results (Sawyer et al., 2017).

Summary

The previous authors detailed the use of a BST model and how it can be used to train staff. BST has been evaluated in parts (Kornacki et al, 2013) and as a whole (Nuernberger et al, 2013) and both versions of implementation were deemed effective. Fetherston and Sturmey demonstrated evidence that BST is an effective way to train staff when working with multiple participants, several stimuli, and various sets of skills (2014). In addition, Hogan et al. (2015) states future studies should evaluate how effective BST is when teaching BIPs to staff who have not been previously trained. Hogan et al., (2015) hypothesized that previous job experience could have influenced the participant’s high performance within the training. Hogan et al. had three out of four participants who had previous experience working in a school setting; thus, allowing them to have more prior experiences within the intervention setting. The main focus of the study was on the improvement of the participants’ performance skills (Hogan et al., 2015). Any prior experience allowed the participants to have familiarities to the topics taught, resulting in those participants having higher performance skill results. Similar to Hogan et al. (2015) study determining familiarities, future research may want to look into evaluating the quality of correct responding against the score for the response. To combat this limitation the use of pre- and posttest multiple-choice questionnaires will remove the need to evaluate the quality of responses by removing the need for written explanation. This demonstrates whether the participants have the correct understanding of the skills or concepts being assessed. Reid and Parsons (1995) compared questionnaires versus choice measures of acceptability when monitoring staff performance in training. Choice measures of acceptability was to determine which observation format was preferred after experiencing both formats and which format they preferred to receive
in the future. Some participants were familiar with the evaluation formats and some were not, as they have not been exposed to the evaluation formats prior. It was concluded there was no difference in performance results; although the participants chose the evaluation form that was most familiar to them (Reid & Parsons, 1995). This would imply that using a familiar method of evaluation in combination with BST could increase the number of correct responses in staff performance skills. Refreshing already trained staff, with familiar evaluation methods, in ABA terminology will help further develop conceptual understanding of ABA practices. Using BST vs. classroom style, instructional teaching with an experimental vs. control group, it is hypothesized that the BST training with the experimental group will be more effective.
Chapter III: Methodology

Participants

The participants were seven females, ages 30 to 54, who were employed at CHEO: Autism Program, an agency where the author was completing a 14-week placement. The agency specialized in preparing children with an Autism Spectrum Disorder (ASD) diagnosis for school readiness.

Selection procedures and consent. Participants were selected based on their involvement and frequent one-to-one engagement with clientele. The agency supervisor recruited seven participants in total for this research study. Each participant was required to give verbal consent prior to being administered the pre-test questionnaire (Appendix C). The author of this study explained information about the study such as: the overall purpose, what was expected from the participant, the risks and benefits associated with the study, the way that the study was to be carried out, how the author ensured confidentiality and privacy, the ability to withdraw at any point, and contact information of supervisors and primary researcher. During consent procedures, the author clearly explained the confidentially, data collection methods, and withdrawal information regarding the study to participants before issuing their consent. Consent was also obtained for the agency name (Appendix B) by the agency supervisor.

Design

Training workshop literature only. The purpose of the training workshop (Appendix D) was to provide agency staff with a document of current ABA concepts that the staff had requested to have refresher training on. The literature detailed what each concept looked like in practice, how the concepts applied to behaviour, and proper implementation of concepts. The author implemented a pre- and posttest questionnaire to determine the overall effectiveness of the literature and workshop. The literature was delivered to both the experimental and control group at the same time as the pre-test questionnaire, although, the literature was not viewed before the completion of the questionnaire. The author remained in the room to ensure completion of questionnaire before participants could view any components of the workshop. The concepts taught to the staff members were reinforcement, motivational operations, differential reinforcement, punishment, and antecedent control procedures. The program was designed to have one, 3-hour training session for both groups, with the control group and experimental group being run on separate days.

Training workshop literature with BST model. The purpose of the BST model was to determine if presenting information using BST was a more effective way to train staff. The BST approach provided staff members with a visual representation of what the concepts looked like, a chance to rehearse the concepts taught, and the opportunity to receive corrective feedback as well as the requirement to rehearse until mastery criteria was achieved. The results are displayed using tables and charts for visual analysis.
Research design. In order to evaluate the effectiveness of the types of training (BST model or presentation of the literature only) a pretest-posttest design was used. The rationale behind this is to allow the author to compare the two questionnaire results for both training groups. The dependent variable in the thesis was the test scores of the participants and the independent variable was the type of training they received.

Setting/Apparatus

The study was completed within the participants’ agency. The experimental group session occurred in the agency’s main therapy area. The therapy room was a cool, brightly lit room, with tables and chairs, as well as a spacious area for modelling and rehearsing purposes. The control group session occurred in the staff room, due to daily activities partaking in the therapy room at the time of training. The staff room was a brightly lit room, with tables and chairs, although because of the instruction space being crowded, the room temperature increased and the room became humid.

Materials

Materials that were used during training included the literature package for each participant, PowerPoint presentation for the instruction portion of the trainings, and the pretest and posttest questionnaires. All materials were created by the Behavioural Psychology placement student. The literature outlines all the necessary concepts that the participants deemed as important for them to focus on for the refresher. The main concepts were outlined in five separate chapters; reinforcement, motivational operations, differential reinforcement, punishment, and antecedent control procedures. The PowerPoint presentation took the main points from each chapter and highlighted the key information.

Measures

Data collected for baseline and intervention were the participants’ pre- and posttest scores. The participants’ test scores were recorded twice during the same session (once at the beginning and then again at the end of session), although the control group and experimental group sessions occurred on different days. This resulted in each participant having two separate test scores. The data were then graphed and analyzed to compare the two groups’ test-scores and determine the effects of the intervention.

The 15-item questionnaire (the pre- and posttest) was used to determine an increase or decrease accuracy of test scores (Appendix C). The questions within the questionnaire targeted common ABA principles and concepts that had been covered during the instruction session. The concepts were as follows, reinforcement, motivational operations, differential reinforcement, punishment, and antecedent control procedures, as previously mentioned.

Procedures

Before commencing any training or intervention, each participant was randomly assigned a letter (i.e. letters A through H). To ensure confidentiality, when given the literature, they also received the pre-test assigned to their letter. When determining which members would be in the
BEHAVIOURAL SKILLS TRAINING TO IMPROVE JOB KNOWLEDGE

The experimental group and control group it was based on the participant’s schedule and what training they could attend (i.e. experimental group or control group). The author was unaware of the letter each participant had been assigned; however, the author was aware of which letters were attending each group (i.e. A through D were in the experimental group, while letters E through H were in the control group). This is to further maintain privacy and confidentiality of all participants.

The participants also were given access to the training workshop and PowerPoint presentations. All participants were given the pre-test questionnaire consisting of 15 questions at the beginning of session. Each group was allotted 10-15 minutes to complete the questionnaire. This data was collected as the baseline. The intervention procedure used the BST model to teach the training workshop and refresh staff’s knowledge of ABA principles and concepts. The intervention occurred within two separate training sessions. The seven participants had been split into two separate groups, an experimental group and a control group, based on scheduling. The first session (the control group) had access to only the literature and PowerPoint presentations during the instructional training. During the second session (the experimental group), the author applied BST strategies to teach terms and concepts outlined in the workshop.

**Experimental group.**

*Instruction stage.* The groups received the training by the same instructor, the author, at different times. Both groups received the first stage of the training session, the instruction stage, where each concept was introduced, defined, given a verbal example, and a familiar workplace scenario to help with concept assimilation. During this phase the researcher answered any questions as they arose. The experimental group training session embarked further into the remaining stages of the BST model. The BST model used modelling, rehearsal, and a feedback stage to further demonstrate the literature’s topics. After the instruction component that each group received, the experimental group received the second stage of BST which was modelling.

*Modeling stage.* This occurred after each chapter, explaining each concept that was taught during the instructional component. Each chapter concept was displayed by the author with the assistance of one of the participants to help demonstrate. This modelling demonstrated what the concept was and how to implement the related skills correctly. Once the concept was modelled once or twice, the researcher moved to the next stage, rehearsal.

*Rehearsal stage.* This consisted of the participants practicing the terms and concepts learned from the modeling. This was done through role-playing. For gaining meaningful experiences from the taught concepts, the researcher instructed the participants to divide into pairs and rehearse the concepts through role-playing. The examples used for rehearsal were from common agency scenarios between a therapist and child. Each pairing took turns being the child or the instructor to allow each member to demonstrate the required skill set. When there was not a common workplace scenario available, the instructor provided an example to role play. If confusion occurred another example was reviewed with participants to practice.

*Feedback stage.* The final stage, occurred when the training facilitator delivered feedback to the participants on how they demonstrated the skills taught in the training. The step used specific praise and corrective feedback regarding the application of the knowledge taught. The author went through many of the rehearsed examples and offered other ways to demonstrate the skill. Once the feedback stage was complete, the instructor returned to the modeling and rehearsing stages to introduce a new term or concept.
Control group. The control group was given the instruction portion of the training in the same manner as the experimental group, however they were not given the opportunity to watch the modelling, to participate in any rehearsals, or receive feedback on practiced skills. After the control and experiment group completed their training session, each participant completed the posttest questionnaire. The posttest was identical to the pre-test administered prior to the training session. At the end of the intervention, the author has gathered all data collected and created a bar graph for visual analysis.
Chapter IV: Results

Pre-and Posttest Questionnaire Test Scores

Workshop training without BST. The control group scored a mean test score of 71% and a mean test score of 84.67% after the presentation of the literature. This is an increase of 13.67%. During the control group training, all participants had an increase in test scores from pre- to post. The control group also demonstrated a low standard deviation from both pretest and posttest test scores. Low standard deviation means that the participant’s individual test scores were close to the overall mean of the control group’s test results, that is, test results showed low variability and high reliability. The results are displayed in Table 1. Table 2 presents the overall mean results of the control group who received the workshop training without the additional BST components.

Table 1
Test Scores: Percentage of Correct Responses of a Pre-and Posttest Questionnaire within the Control Group

<table>
<thead>
<tr>
<th>Participant</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>67%</td>
<td>80%</td>
</tr>
<tr>
<td>F</td>
<td>73%</td>
<td>87%</td>
</tr>
<tr>
<td>G</td>
<td>73%</td>
<td>87%</td>
</tr>
</tbody>
</table>

Table 2
Measures of Central Tendency of Test Results in Experimental Group

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>71%</td>
<td>84.67%</td>
</tr>
<tr>
<td>Median</td>
<td>70%</td>
<td>83.5%</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>2.45</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Workshop training through BST. The experimental group, who received BST combined with the presentation of a training workshop, scored a mean of 61.75% on their pretest and a mean test score of 73.25% on their posttest. This was an overall increase 11.5%. Although the test scores did increase in accuracy from pre- to post in the experimental group overall, two participants, Participant A and Participant D demonstrated a decrease in correct responses. The experimental group also included a high standard deviation from both pretest and posttest test scores, that is, the participants’ individual test scores were not close to the overall mean of the control group’s test results. The results of the pre- and posttest Questionnaire scores are
presented in Table 3 below. Table 4 compares the overall mean and median of the pre- and posttest scores of the experimental group.

Table 3
*Test Scores: Percentage of Correct Responses of a Pre-and Posttest Questionnaire within the Experimental Group*

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant A</td>
<td>73%</td>
<td>67%</td>
</tr>
<tr>
<td>Participant B</td>
<td>60%</td>
<td>93%</td>
</tr>
<tr>
<td>Participant C</td>
<td>47%</td>
<td>73%</td>
</tr>
<tr>
<td>Participant D</td>
<td>67%</td>
<td>60%</td>
</tr>
</tbody>
</table>

Table 4
*Measures of Central Tendency of Test Results in Experimental Group*

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>61.75%</td>
<td>73.25%</td>
</tr>
<tr>
<td>Median</td>
<td>63.5%</td>
<td>76.5%</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.68</td>
<td>12.09</td>
</tr>
</tbody>
</table>

**Changes to Workshop and PowerPoint**

The staff training literature and PowerPoint, as described in Chapter III, was used to help improve job-related knowledge in staff at the CHEO: Autism Program. There were no changes made to the workshop or the literature provided to the participants during training sessions or after training sessions; however it should be noted that the power point presentation was not delivered to the control group as was originally planned. The instructor felt the literature paired with PowerPoint was redundant. The control group’s instruction content delivery was concentrated solely on following the literature, although the experimental group focused on both using the literature and the PowerPoint provided.

**Final Products**

A workshop was created to help improve job-related knowledge at the CHEO: Autism Program (Appendix D). The chapters therein give explanations of key information to clarify ABA principles and concepts. Reinforcement, motivational operations, differential reinforcement, punishment, and antecedent control procedures are explained through tables, charts, and tips. The literature’s topics were chosen based on feedback from staff on what they deemed as important
to review. The participants each received their own copy allowing them the ability to access it whenever needed, as well as an agency copy for any new staff members.

Prior to the presentation of the literature, a questionnaire was provided. The 15-item questionnaire was created to determine pre- and posttest scores of all participants to measure if there was an increase in job-related knowledge. The questionnaire used multiple choice questions to target information that was outlined by the literature. To reinforce the material taught, a PowerPoint presentation was created by the author. This PowerPoint highlighted important aspects of each chapter through bullet points and charts. It allowed the participants to have a visual of the information being discussed at that specific time. The PowerPoint portion of training was delivered to only the experimental group. The control group had access to just the literature.

During BST, many examples were used. These examples included using current clients’ behaviours to help explain and visualize each chapter’s content. For the modelling component for each chapter, a participant was asked to role-play as a client to demonstrate the concept being taught. Using a participant allowed the author to model the ABA principle or concept being taught in the respectable chapter, allowing the participants to review what is expected of them. For the rehearsal component of the BST model, the author divided the participants into pairs and requested that one participant in each pair become a client and the other the instructional therapist. This pairing allowed the ‘instructor therapist’ to apply the skills taught to the ‘client’s’ behaviour. After this component was completed, the author than asked the roles to be switched and was carried out in the same manner. The author reviewed each role-play simultaneously, correcting and improving the application of the concept or principle appropriately. Once each participant completed each role, the author rejoined the group of participants and reviewed their strengths when completing the concept and noted areas where they could improve. This process of BST was replicated for each concept or principle highlighted in the literature and the PowerPoint until all five chapters were reviewed.
Chapter V: Discussion

Overview

With the use of the workshop and literature, five out of the seven participants demonstrated an increase in accuracy of test scores, revealing that the workshop training was effective in refreshing staff members in job-related knowledge. Although the control group yielded a higher test score percentage across pre- and posttest scores, the experimental group also showed improved test scores. The hypothesis was not confirmed as the training with a workshop using BST was less effective than training with a workshop using literature and lecture instruction format only. Different factors that could have contributed to BST not yielding the expected results such as different delivery of instruction stage, prior knowledge of individual participants, limited rehearsal and feedback time, different training times, and different training environments. Although the hypothesis was unconfirmed, it can be confirmed that implementing a training workshop can be beneficial in improving job-related knowledge in staff.

While the use of the four components of BST was outlined and replicated in previous research (Nuermeberger et al. 2013; Kornacki et al. 2013), the application of agency-related examples for training was not examined. The BST components in this study were delivered using real work scenarios, which were especially familiar to the staff participants, as they were their current clients. This assisted with the explanation of concepts taught and provided additional understanding of how those concepts are implemented throughout the staff’s everyday life.

Strengths

With the use of refresher training, 5 out of 7 participants improved their test scores from pre- to posttest. This indicates that forms of training in refreshing job knowledge is beneficial within the instructional therapist occupation or behavioural psychology field. With the improvements made to the staff’s job-related knowledge, it can be identified that the application of intervention plans and individualized behavioural plans can be improved due to the correct understanding of ABA strategies taught within the workshop.

Limitations

Various limitations have affected the expected results of this study. Some identified areas were; instructional delivery, prior knowledge of participants, time constraints, timing of trainings, and training environment.

Instructional delivery. Having a PowerPoint presentation for the control group who received lecture style instruction only was deemed as redundant by this author and removed as a component of the control group. Upon retrospect, is it clear that this removal created outside variables that impacted the results of the control group compared to the experimental group by removing unnecessary focal points; however, the results were not as expected. When comparing the two groups test scores, the control group demonstrated a higher mean accuracy test score percentage. The removal of the PowerPoint presentation raises questions in terms of test results; did the presentation of the PowerPoint add confusion to the experimental group resulting in a lower test score mean? Did the PowerPoint removal from the control group give the group the
opportunity for a more focused approach to material retention (i.e. study time) than the experimental group?

The removal of the PowerPoint may have been a confounding variable that yielded more confusion for the experimental group than assistance. It is suspected that the removal of the PowerPoint allowed for a more focused study for the control group and increased confusion in the experimental group thereby impacting the test scores across both groups.

**Prior knowledge of participants.** Prior knowledge before the completion of the pretest can affect the pre- and posttest test scores. Having a broader understanding of the topics taught may have resulted in the tests being less difficult for some. Every participant had a different repertoire of knowledge prior to the trainings. Indicated through the pre-test, the experimental group had two individuals who had lower test scores then fellow group members. These two participants may have had weaker knowledge base prior to training. Participants who had a different background of knowledge or experience not in-line with the material being presented may have found the content less familiar and more difficult to understand. It should be noted that there was a 10-point difference between the average test score from the control group compared to the experimental group. This means that the control group potentially had a stronger prior knowledge base. This does not mean that the BST was ineffective, but it implies that the participants in the control group may have had higher result due to prior knowledge or experience. Other participants that had background knowledge in the current field of work, ABA or autism, would potentially have an easier understanding of the workshop literature that was being delivered. These participants have been possibly exposed to the workshop literature in previous settings, allowing them to be familiar with the content compared to participants that had different prior knowledge or job experience.

**Time constraints.** During the training, the author was unable to provide rehearsal and feedback until mastery due to time constraints. These time constraints occurred due to the limited availability of the participants and the training environments, as the agency had the training environment reserved for client activities except the last hour and a half of the day. Due to these constraints, time became an issue and the instructor was required to work within the given timeframe. There was not enough time during the training session to rehearse the concept while incorporating the feedback received. Although time constraints were present, both trainings were completed within an hour and a half.

Due to scheduling issues beyond the author’s control, the dates of the trainings did not allow for all staff members the opportunity to attend trainings. Prior to the construction of the study, a total of eight participants were projected to complete the training; however, one had to drop out just before training was to commence. Having the extra intended participant would have created an equal participant pool in each group. The participant that did not attend the trainings would have participated in the control group. Incorporating this participant would have altered the test score results; thus potentially changing the average scores between groups and affecting the overall results.

**Timing of trainings.** Training sessions were delivered at different times during the day and on separate dates. This is important to consider when comparing the results and outcome of the study. One training session was mid-week, at the end of the participants’ work day (the control group) and the other was in the morning of the last day of their work week (the
The control group had to complete the training after a day of work. This may have caused fatigue and decrease ability to retain information. However, this also gave participants the opportunity to write the pre- and posttest after a day of being in practice with many of the concepts, such as reinforcement. This may have contributed to their increased scores because, while they did not have the BST component during training, they received a day long practice in the field. The experimental group participated in a morning training session, which was also delivered on the agency preparation day. The preparation day is one specific day a week where staff are allotted time to prepare for instructional activities, input and graph weekly data, and debrief with the team to discuss client progress. Due to the morning training session occurring on the preparation day, it is possible that the participants could have been distracted. It was noted in the literature review that Kornacki et al., (2013) and Nuernberger et al. (2013) identified natural environments as a main limitation where the participants can become distracted within their environment, which can cause difficulties in accurately evaluating the retention of the information discussed within the trainings. While this study controlled as best as possible for environmental distractions, it did not take into account workload distractions that may had an impact.

**Training environments.** Another limitation may have been the environment in which the two groups completed their training. The control group session occurred in the staff room as the therapy room was unavailable. The staff room was a brightly lit room, with tables and chairs; however: the instruction space was smaller and therefore crowded, which caused a temperature increase and the room to become humid. The experimental group’s training occurred in the agency’s main therapy room, which was a cool, brightly lit room, with tables and chairs. It was also a spacious area for modelling and rehearsing techniques. This room had agency-related learning materials displayed on walls, tables surrounded by learning materials, and there were other individuals using the room for agency related tasks during the workshop as well. Having two separate training environments may have impacted the effectiveness of training. The control group occurred in a smaller space, although the posttest scores for the control group were higher than the experimental group, their test scores could have been impacted by potential participant discomfort due to the humidity within the testing. In contrast, the experimental group could have resulted in a higher posttest scores if there were fewer distractions in the room. The added materials within the room during the workshop also could have impacted test scores and potentially created confusion if there were any conflicts in understanding from the workshop versus materials being displayed by the agency.

**Contributions to Behavioural Psychology Field**

Workshops for refresher training will help increase staff knowledge in the ABA field. Despite the difference in scores from the control group compared to the experimental group, this study concluded that the pre-test scores compared to posttest accuracy scores across the experimental group increased; thereby verifying that BST is an effective way to train. BST remains an exemplary means of training because of the use of modelling and rehearsal, which provides visual representations and practice of what is being taught. The rehearsal component of the training allows individuals the opportunity to display their understanding of the learning. The rehearsal phase incorporates constructive feedback by the trainer; thus, providing immediate feedback and opportunity for improvements. It is possible that BST may not have been necessary
for this staff as the control group, having only received lecture format instruction one, resulted in higher scores than the experimental group. It is also worth nothing that BST results may not be accurately reflected on a written pre/posttest but through the skill demonstration. The author’s training did not influence the test scores, influenced the demonstration of skills; however this was not measured.

**Multilevel Challenges**

**Client level.** Improving agency staff job-related knowledge is very important. Without accurate knowledge on ABA principles and concepts there is potential for confusion for all staff members, and it limits the chance to access the best possible programs for clients. From a client level, the programs assist them in learning new skills to create independence, they open opportunities for more fulfilling lifestyles, and assist in reducing any challenging behaviour(s) they may engage in. Some of these programs are complex and require an in-depth understanding of ABA to be implemented. Implementing a behavioural program without proper knowledge of the principle or concept is not only unethical, but it could reinforce maladaptive behaviours in clients and impact the relationship with the staff member. Refreshing staff related knowledge can aid the staff members in identifying the correct method of implementation, benefit both the staff-client relationship and improve the client’s behaviours.

**Program level.** When discussing the importance of refresher training, it is important to consider the impact on program integrity, cost efficiency, and safety. When implementing a behaviour plan without accurate knowledge and understanding of principles and concepts, a potential for incorrect implementation can occur. This, in turn, can cause an increase in unnecessary staff time adjusting an adequate plan due to ineffective implementation. It can also add safety risks if proper procedures are ignored or misunderstood when dealing with aggressive clients. Refreshing staff knowledge may remove the need to change or alter programs and create an effective behavioural plan for the client.

**Societal level.** Incorrect implementation of behaviour plans means that the clients are not receiving the correct course of treatment. If target behaviours are not increased or decreased by the agency’s behavioural programs, parents’ may believe that the agency is unsuccessful in assisting their child and lose faith in ABA procedures. In this particular field, that will limit the resources the family has to assist them in teaching and assisting with their children’s challenges. Incomplete or incorrect understanding of ABA principles will also lead to a misrepresentation of behaviour analysis in the field overall. From a societal level, this will contribute to inappropriate utilization of strategies outside the supervision of a behaviour analyst, which will foster the reputation that ABA is a basic application of reinforcement and punishment, and complex variables that affect behaviour, such as motivational operations, will not be considered.

**Associated Challenges**

**Ethical concerns.** Refresher training encourages participants to improve delivery and increase knowledge on behaviour concepts and principles. This put onus on the training to ensure that participants have comprehended and demonstrated the skills effectively as ABA uses behaviour change tactics. This can potentially shape and reinforce maladaptive or dangerous
behaviours in clients through the misuse of the tactics if those principles have not been properly applied. It is important to ensure that the staff being trained accurately understands the material in order for them to apply it to interventions and in-session with clients.

**Training implementation.** Training preparation require significant time from the instructor. It is recommended that the training have an instructor that fully understands the implementation of a BST model to train staff in the workshop material. Having this depth of understanding can take much practice and hours to acquire; however it will improve the overall effectiveness of the training and will ensure its integrity. The trainer would also need to be up-to-date on current literature to maintain relevant and novel implementation of strategies taught through BST. As ABA strategies are constantly being researched and tested to be more efficient in implementation of behavioural programs, the instructor would also have to allot time for research in these areas.

To resolve some of the limitations, this author recommends using the identical training environments where the distractions, testing environment variables, and visual aids would be the same for all workshop sessions. Also, it is recommended to have the same size groups, for both control and experimental. This would help balance the results for better comparison.

**Recommendations for Future Research**

Future research should evaluate the instructional teaching components and determine if there are delivery methods that can allow consistency when training more than one group, due to group size. Replicating the instructional component will be beneficial to determine if clients are receiving the identical information, giving them the opportunity to have an equal understanding. Providing the two groups with equivalent instructions and delivery during training would allow all participants the opportunity to improve their test scores. Continuing research in this area would help determine and eliminate the limitations that are placed on the on the instruction phase of a BST model as compared to the other components of BST (i.e. modelling, rehearsal, and feedback).

Future research should focus on the effectiveness of the separate components within the BST model (i.e. instruction, modelling, rehearsal, and feedback) to determine areas for potential improvement. As mentioned in previous articles, breaking down BST and pairing components would help to distinguish if any particular pairings are more effective. Kornacki et al (2013) identified how each stage of the BST model was effective, although did not determine which component was the most effective. Although the use of the BST model was not deemed as effective within this study, it can be determined that it is an overall efficient method in delivering refresher training to staff members at an autism program agency.

**Final Word Count – 8.878**
References


Appendix A: Informed Consent Form

Project Title: Using Behavioural Skills Training to Improve Job Related Knowledge Skills in Staff

Principle Investigator: Danielle Poirier-Froats  Name of Supervisor: Caelah Devlin
Name of Agency: CHEO Autism Program  Name of Institution: St. Lawrence College

Introducing the Researcher

- The author is a student that is completing her final year in the HBAA in Behavioural Psychology, a degree through St. Lawrence College, under the supervision of Caelah Devlin, M.ADS.
- During the final year of schooling, the student is asked to complete a placement where they are expected to complete a research proposal or applied thesis.
- The student would like you to be a part of their research project to help complete their applied thesis.

This 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).

Please read all sections carefully and ask questions if needed.

The purpose of the research study is to improve job related knowledge using a solely a workshop taught through instructions or a Behavioural Skills Training model on ABA principles and concepts.

Potential benefits and foreseeable risks of this study include:

- It will allow the participants to review previous knowledge about ABA principles and concepts.
- That the training may substantiate current ABA knowledge base and add additional understand.
- It may cause temporary confusion as terms and concepts are clarified IF the previous understanding of certain terms or concepts do not align with what is taught

All information collected in terms of this research study will:

- The research data will be de-identified and kept on a password protected computer (author and supervisor’s) for 7 years and then destroyed.
- 10 years after the involvement, all documents containing any personal information will be destroyed (e.g. consent forms) via shredding.
- Only encrypted data and information will be used, if needed, for publications and will be presented at St. Lawrence College solely for learning purposes. None of the information used will have identifying indicators to reveal the participants information.
Choosing to participate in the study, you will:

- Be expected to be **attend a 3-hour training session** on a regular work day in the month of **December**.
- Be asked to **fill out 2 questionnaires**; one delivered before the training session, and one identical questionnaire at the end of the training session. The questionnaire will ask questions around information presented during the training session.

Once the questionnaires are completed you will not have access to the results, if you wish to do so special measures will be put in place. Results of the questionnaires can be viewed once the final thesis is completed. The thesis will be available in the SLC library and presented at the B-Psyc Poster Gala.

Participation in this study is **voluntary**. At any time, if you do not wish to continue to participate you are not required to; however, to be able to participate, completion of this form is necessary. **If you wish to withdraw you can do so up until the end of the project**, as I am under a tight schedule to complete it. Once the project is completed I will not be able to withdraw your information. If you choose to withdraw from the project you will still be able to remain in the class. Once removed from the study, **all information and data collected pertaining to you will be destroyed**.

If you have any questions concerning my research project you may contact myself, DPoirier-froats01@student.sl.on.ca, or my college supervisor Caelah Devlin, M.ADS caelahd@gmail.ca. If you have concerns about the way this project is being conducted or about your rights as a participant you may contact the SLC-REB Chair at reb@sl.on.ca.
If you do consent to be included in this study and agree to the information discussed, please complete the form below. Upon signing, this form will be held at the agency and St. Lawrence College. Also, once signed, a copy of the consent form will be available to you upon request.

By signing this form, it is agreed that:

- You understand the study and it has been explained to you.
- You understand what the study is asking you to do.
- You understand the possible risks and benefits that have been explained.
- All questions were answered and that you are free to ask questions anytime throughout the study.
- You understand that you have a right not to participate and the right to stop at any time.
- You understand that all personal information will be kept confidential and no information will be used to identify you.
- You understand that any information pertaining to you will not be released without your consent.
- You have the choice to receive a signed copy for this consent form.
- You understand that the results from this study will be presented at the St. Lawrence College Behavioural Psychology Poster Gala.
- You understand and agree to allow results from this study to be reported at other conferences or published in psychology journals.

I hereby consent to be included in the research study explained above.

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

<table>
<thead>
<tr>
<th>Facilitator’s Name:</th>
<th>Facilitator’s Signature:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix B: Sample of Consent for Use of Agency Name

St. Lawrence College

Date: _______________________

Consent for Use of Agency Name

I _______________________ consent to the use of the name of CHEO: Autism Program in Danielle Poirier-Froats’ applied thesis for the Honours Bachelor of Behavioural Psychology program at St. Lawrence College.

__________________________________________
Agency Staff Signature

__________________________________________
Student Signature

__________________________________________
Printed Name

__________________________________________
Printed Name
Appendix C: Pre-or Posttest Questionnaire Sample

Participant: A  B  C  D  E  F  G  H

When did you complete your last year schooling? _________________
How long have you been in this field? _________________

Please answer the following questions to your best ability:

1. A girl enters a loud theatre and does not like the volume level. She leaves the theatre, and the noise level lessens. She then continues to leave on all subsequent occasions, when the level of noise is too loud. This is an example of:
   a. negative reinforcement
   b. positive reinforcement
   c. negative punishment

2. _______ _______ is an environmental variable that increases the reinforcing or punishing effectiveness of some stimuli or event.
   a. Abolishing operation
   b. Motivating operation
   c. Establishing operation

3. What is an example of positive reinforcement?
   a. Getting a candy bar when putting money in the machine
   b. Taking pain medication to treat a headache
   c. Dad not hugging his daughter for helping him clean up

4. What are antecedent control procedures?
   a. Environmental changes implemented before the behaviour in order to regulate the frequency
   b. Reducing the challenging behaviours
   c. Both a & b
5. When Brandon, an inpatient client, pinches others, after some time, staff will take him for a walk. The maintaining contingency of the pinching is:
   a. socially mediated escape
   b. an unconditioned motivating operation
   c. automatic reinforcement

6. When problem behaviour has been targeted for reduction, the behaviour analyst does not consider a (n) _______ in the intervention plan.
   a. Replacement behaviour
   b. Old behaviour
   c. Socially Appropriate behaviour

7. Which one is not an example of negative punishment:
   a. A child kicks a peer and is removed from his favourite activity. He has not kicked anyone since
   b. A child yells out in class, loses a token for good behaviour on her token board that could have later be cashed in for a prize
   c. A child touches a hot stove and feels pain

8. Mark used to have tantrums when he wanted a break. He was taught to present a PEC icon for a body break to his teacher and now he no longer has tantrums. This is an example of:
   a. Differential reinforcement of lower rates of behaviour
   b. Differential reinforcement of alternative behaviours
   c. Differential reinforcement of incompatible behaviour

9. Omission Training Procedure is also known as:
   a. DRO
   b. DRL
   c. DRI

10. What is an example of positive punishment:
    a. Taking away a toy when a child is chewing it
    b. Giving a good recommendation to a co-worker for not being late
    c. A speeding ticket for speeding
11. An MO that _______ the current effectiveness of a reinforcer is called an _______ operation (e.g. food deprivation makes food more effective as a reinforcer); An MO that _______ the current effectiveness of a reinforcer is called an _______ operation (e.g. food ingestion reduces the effectiveness of food as a reinforcer)
   a. Increases, establishing; decreases, abolishing
   b. Increases, abolishing; decreases, establishing
   c. Maintains, establishing, decreases, abolishing

12. Which is not an example of differential reinforcement of incompatible behaviour:
   a. A child is praised when using a PEC icon to use the washroom when he has accidents
   b. A child is constantly touching his neighbors during play time, he is reinforced for keeping his hands on his lap or sitting on them
   c. A teacher gives a child an edible when he sits down during circle when he is prone to elope

13. Bob tends to wait until his mom nag him to do the dishes. This week Bob does the dishes to stop his mother’s nagging. Bob’s behaviour is an example of:
   a. Negative Reinforcement
   b. Antecedent Control
   c. Negative Punishment

14. Differential reinforcement of lower rates of behaviour is:
   a. The reinforcing of periods of time in which the child shows the behaviour at predetermined rate.
   b. The reinforcement of behaviors that cannot co-occur with the problem or inappropriate
   c. When positive reinforcement is periodically delivered only if the participant does something other than the target response

15. Which is an example of antecedents:
   a. A mother walks into the room, turns off the TV and the child begins screaming.
   b. Engaging in SIB when people enter the room
   c. Changing staff rotations to better suit clients (French/English)
Appendix D: Workshop Literature

Workshop Literature: ABA Principles and Concepts

Danielle Poirier-Franks
2017
Table of Contents

Table of Contents .................................................................1
Chapter 1: Reinforcement .......................................................2
  Ways to Deliver Reinforcement ............................................2
  Positive Reinforcement ......................................................4
  Negative Reinforcement ....................................................5
  Chapter Summary ............................................................5
Chapter 3: Motivational Operations ...........................................6
  Establishing Operations .....................................................7
  Abolishing Operations ......................................................7
  Chapter Summary ............................................................7
Chapter 2: Differential Reinforcement of ...................................9
  … Low Rates of Responding (DRL) .......................................9
  … Alternative Behaviour (DRA) ............................................9
  … Other Behaviour (DRO) .................................................10
  … Incompatible Behaviour (DRI) .........................................11
Chapter 4: Punishment ..........................................................12
  Positive Punishment .........................................................13
  Negative Punishment .......................................................13
  Chapter Summary ............................................................14
Chapter 5: Antecedent Control Procedures ..................................15
  Types of Antecedent Control Procedures ...............................15
  Chapter Summary ............................................................15
References .............................................................................16
Chapter 1: Reinforcement

“Reinforcement is the process in which a behaviour is strengthened by the immediate consequence that reliably follows its occurrence” – Raymond Miltenberger 2012 (p.62).

Reinforcement can be defined as three parts:
- the occurrence of a specific behaviour
- when the behaviour is followed by an immediate consequence (both positive or negative)
- when it results in the strengthening of the behaviour

When a behaviour is strengthened it involves an increase in its frequency, duration, intensity, and/or speed.

When a behaviour is strengthened through reinforcement it then becomes an **operant behaviour**. Knowing that reinforcement depends on the immediate consequence, the operant behaviour is strengthened by the reinforcer.

**Reinforcers** are stimulus or events that can increase the probability of the behaviour occurring when it occurs contingent on the behaviour.

Reinforcers can be either unconditioned or conditioned.

- **Unconditioned reinforcer** is also known as a primary reinforcer. They are reinforcing for the person when they are first presented, does not require any prior experience to function as a reinforcer.
- **Conditioned reinforcer** can also be known as a secondary reinforcer. This means that a stimulus which was once neutral but became established as a reinforcer by being paired with an unconditioned reinforcer or an already established reinforcer.

Ways to Deliver Reinforcement

There are different types of reinforcement, social and automatic, positive and negative, each occurrence of reinforcement has a combination of these four types.

**Social Reinforcement** occurs when the behaviour produces a reinforcing consequence through the actions of another person. In other words when the reinforcement has direct relation to another person, whether it is their actions or involvement with the person.

**Automatic Reinforcement** “occurs when the behaviour produces a reinforcing consequence through direct contact with the physical environment (p.267)” (Cooper, Heron, & Heward, 2007).

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your friend brings you candy</td>
<td>You friend turning off the light cause it hurts your eyes</td>
</tr>
<tr>
<td>after you ask</td>
<td>Scratching your arm to relieve an itch</td>
</tr>
</tbody>
</table>

*Figure 1.1: Miltenberger gives the previous examples of combinations of the four types of reinforcement.*
There are many factors that can influence the effectiveness of reinforcement. The main factors focus on how the reinforcer can differ according to individual and behaviour.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediacy</td>
<td>A stimulus is more effective as a reinforcer when it is delivered immediately after the behaviour.</td>
<td>Giving a dog a treat after 2 seconds when he sat down (the demand). Providing the reinforcement for sitting.</td>
</tr>
<tr>
<td>Contingency</td>
<td>A stimulus is more effective as a reinforcer when it is delivered contingent on the behaviour. A person is more likely to repeat a behaviour when it results in consistent reinforcing consequences.</td>
<td>Every time you turn the key in the ignition, the car starts.</td>
</tr>
<tr>
<td>Magnitude</td>
<td>Generally, a more intense stimulus is a more effective reinforcer.</td>
<td>A person would work longer and harder for a larger amount of money than a smaller amount.</td>
</tr>
<tr>
<td>Individual Differences</td>
<td>Reinforcers vary from person to person</td>
<td>Praise may be meaningless to some people, even though it is a reinforcer for others.</td>
</tr>
<tr>
<td>Motivating Operations</td>
<td>Establishing operations (EO) makes a stimulus more effective as a reinforcer at a specific time. Abolishing operations (AO) make a stimulus less potent as a reinforcer at a specific time.</td>
<td>EO: when someone is given water after not drinking for a whole day. They are more likely to be thirsty. AO: when someone is offered food after eating a large meal, they are less likely to be hungry.</td>
</tr>
</tbody>
</table>

*Figure 1.2: Miltenberger’s factors for that influence the effectiveness of reinforcement.*

Positive Reinforcement

Positive reinforcement can be defined as:

- the occurrence of a behaviour
- is followed by the addition of a stimulus (reinforcer) or an increase in intensity of stimulus
- which results in the strengthen of a behaviour.

In order to positively reinforce a behaviour a stimulus needs to be presented or increased added which leads to the result in likelihood of that behaviour occurring again.

Some examples include:

- A parent paying attention to their child who is crying, and then child crying whenever they want attention from their parents
A friend providing a correct answer to a question when a student asks her for the answer thereby increasing the behaviour of asking the same friend for answers in the future.

- A teacher praising his student when the student is sitting quietly and paying attention, thereby increasing the behaviour of sitting quietly in the future.

- A child getting candy from his mother when he is having a tantrum in the grocery store, thereby increasing tantrum behaviour in the store whenever the child wants candy

Types of Positive Reinforcers

- **Verbal Praise/Social**
  - when completing a task or demand following the behaviour with a verbal acknowledgement.
  - Can be in the form of a “Way to go!”, “Good Job!”, “Yahoo!”, a smile, a high five, and/or tickles.

- **Tokens**
  - a small marker that can be used to track efficiency when completing tasks.
  - can be in the form of sticker or checkmarks.
  - often can be traded in (cashed-in) for another reinforcer once a predetermined amount is reached.

- **Tangible**
  - a preferred item that has been determined to be reinforcing.
  - can be tablets, computer games, and/or favourite toys.

- **Edible**
  - A preferred food that can be easily presented after the occurrence of the target behaviour.

<table>
<thead>
<tr>
<th><strong>Tips:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- A stimulus is added or increased</td>
</tr>
<tr>
<td>- The behaviour is strengthened</td>
</tr>
<tr>
<td>- Increases the probability of the behaviour occurring in the future</td>
</tr>
</tbody>
</table>

Negative Reinforcement

**Negative reinforcement** strengthens a behaviour by removing or reducing the aversive stimulus. An **aversive stimulus** is a stimulus that will decrease the likelihood a behaviour will occur in the future.

Negative reinforcement is defined as:

- the occurrence of a behaviour
- is followed by the removal of a stimulus (aversive stimulus) or decrease in intensity of a stimulus
- results in the strengthening of the behaviour that decreased or removed the aversive stimuli.
In order to negatively reinforce a behaviour, a stimulus needs to be removed after a behaviour has occurred; thereby resulting in an increase of that behaviour occurring in the future.

Some examples include:
- Removing a sound that is irritating to an individual after they have yelled to stop the noise.
- Opening the umbrella to stop the rain from hitting the woman’s head
- Putting in earplugs to drown out people yelling.
- Turning on the exhaust fan to remove the smoke in the room.

**Tips:**
- An aversive stimulus is removed.
- The behaviour is strengthened.
- Increases the probability of the behaviour occurring in the future

Chapter Summary

Positive and negative reinforcement are the same because they strengthen the behaviour, they both increase the probability of the behaviour re-occurring. They differ through whether or not a stimulus is presented (positive) or removed (negative).

<table>
<thead>
<tr>
<th></th>
<th>Positive Reinforcement</th>
<th>Negative Reinforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- when a stimulus is added to strengthen the behaviour</td>
<td>- when an aversive stimulus is removed to strengthen the behaviour</td>
</tr>
<tr>
<td></td>
<td>- Increases the probability of the behaviour</td>
<td>- Increases the probability of the behaviour</td>
</tr>
</tbody>
</table>

Social Reinforcement
Automatic Reinforcement
- Delivered through another person
- Delivered independent of the social mediation of others

Miltenberger (2012) created these questions with determining what type of reinforcement is being used:
1. What is the behaviour?
2. What happened immediately after the behaviour?
   a. Was the stimulus added? (positive reinforcement)
   b. Was the stimulus removed? (negative reinforcement)
3. What happened to the behaviour in the future?
   a. Was the behaviour strengthened?
   b. Was it more likely to occur?
an added question to determine the delivery of the reinforcement can also be:

4. Who produced the reinforcing consequence?
   a. Was it another person? (social reinforcement)
   b. Was it the person partaking in the behaviour? (automatic reinforcement)
Motivating Operations are an antecedent stimulus or event that alters the value of a reinforcer or punisher alters the frequency of all behaviour that has been reinforced or punished by the stimulus object or event (Cooper, Heron, & Heward, 2007).

There are two types of Motivating Operations
- Establishing Operations
- Abolishing Operations

Establishing Operations (EO): a type of motivating operation which occurs when an event increases the effectiveness of a specific reinforcer at a particular time and evokes the behaviour that produces that reinforcer.

Deprivation is a type of establishing operation that increases the effectiveness of most reinforcers. It occurs when someone has not had a specific reinforcer for a large amount of time.

- Example: food or water, say the person has worked all day and has not eaten. In most cases using food will be a stronger reinforcer than a toy or another item.

Abolishing Operations (AO): a type of motivating operation which occurs when an event decreases the effectiveness of a specific reinforcer at a particular time and makes the behaviour that produces the behaviour less likely to occur.

When attempting to identify when an abolishing operation is in effect, consider if a person has had an abundance of a specific item. These items will not be strong reinforcers in that moment.

Satiation is a type of abolishing operation that occurs when a person recently consumes a large amount of a particular reinforcer. Satiation results in the reinforcer becoming less reinforcing, therefore becoming less effective.

- Example: attention, say the student just received a large amount of one-to-one time with a teacher. Getting attention from other adults may not be as reinforcing as a toy.

Chapter Summary

Motivating operations can be broken down into two sub-categories, establishing and abolishing operations. Motivating operations alter the reinforcing or punishing effectiveness of some stimulus object or event. They also alter the current frequency of all behaviour that has been reinforced or punished by that stimulus object or event.
<table>
<thead>
<tr>
<th>Establishing Operations</th>
<th>Abolishing Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Can make a reinforcer more effective.</td>
<td>- Can make a reinforcer less effective.</td>
</tr>
<tr>
<td>- Has been deprived of reinforcer.</td>
<td>- Has been satiated.</td>
</tr>
</tbody>
</table>

Some examples of Establishing Operations are:
- You were told that there was a copper penny shortage and that pennies are now worth 50 cents apiece.
  - The reinforcing value of the pennies would increase and you would be more likely to engage in a behaviour that resulted in obtaining more pennies.
- You have just bought a new table for your computer and printer. When you read the assembly instructions and discover that you need a screwdriver to assemble it.
  - The value of having the screwdriver (the reinforcer) increases at that time. As a result, you are more likely to go looking for a screwdriver, allowing you to assemble your new table.

Some examples of Abolishing Operations are:
- Your friend had some tickets for events at an amusement park you were about to attend. If you were told that the tickets had expired and were no longer being accepted.
  - The reinforcing value of the tickets would be lost and you would be less likely to ask your friend for the tickets.
Chapter 3: Differential Reinforcement

Differential Reinforcement of Low Rates of Responding (DRL)

Differential Reinforcement of Low Rates of Responding occurs when a reinforcer is delivered contingent on a lower rate of responding during a period of time. In DRL, the reinforcer is given when the rate of the target behaviour is decreased to where it meets the criterion level. Within DRL, you do not reinforce the absence of the target behaviour, like a DRO, instead reinforce the lower rate target behaviour.

There are two variations of DRL, full session DRL and spaced responding DRL. Each occur when a reinforcer is delivered, although full-session DRL occurs when there are fewer than \( X \) responses that occur in the session. Spaced-responding DRL occurs when the response occurs after an interval amount of time.

Implementing DRL Procedures

There are a few steps to go through when implementing a DRL procedure.

1. Determine whether DRL is the right procedure to use.
   - DRL is appropriate when the goal is to decrease the rate of a behaviour but not trying to eliminate it.
2. Determine an acceptable level of behaviour.
   - Full-session DRL must have a pre-determined about of responses per session.
   - Spaced-responding DRL must have an interval of time that must pass between each occurrence of the target behaviour

Differential Reinforcement of Alternative Behaviour (DRA)

Differential Reinforcement of Alternative Behaviours (DRA) is the procedure used to increase the frequency of a desired behaviour and to decrease the frequency of undesirable behaviour.

DRA results in an increase in the future probability of the desirable behaviour occurring. At the same time, any undesirable behaviours that may interfere with the desirable behaviour are not reinforced.

DRA involves the combination of reinforcement of a desired behaviour and extinction of undesirable behaviour.

Extinction occurs when a previously reinforced behaviour is no longer followed by the reinforcing consequences, the frequency of the behaviour decreases in the future.

An example of DRA is:

- When a student is crying at circle time and does not want to listen to O’ Canada. The teacher socially reinforces them for sitting at circle (desired behaviour) and ignores crying behaviour
When to use Differential Reinforcement of Alternative Behaviours

When implementing a DRA ask three questions:

1. Does someone want to increase the desirable behaviour rate?
2. Is the behaviour occurring occasionally already?
3. Can you gain access to a reinforcer for immediate delivery after the behaviour?

To reinforce an alternative behaviour, the behaviour needs to at least occur occasionally. This removes the need to teach the target behaviour. If the behaviour does not occur, DRA is not the right method of reinforcement.

If shaping and chaining a behaviour is needed, DRA may then be used to strengthen and maintain the behaviour after it has been taught or shaped.

Defining the Desirable and Undesirable Behaviour

When defining the desirable behaviour make sure it is observable, clear, and concise in its description so that all mediators of treatment can understand precisely the behaviour to look for.

When defining the undesirable behaviour make sure it meets the above criteria for clarity as it will help measure any incidents of the behaviour to determine if the DRA method was working as intended.

Identify the Reinforcer

Some techniques for identifying an appropriate reinforcer are:

- Using a reinforcer that is currently maintaining the undesirable behaviour. Since the behaviour is already being reinforced, it can be determined that the reinforcer is already successful and reinforcing.
- By observing the person and take notes on what activities and toys they pursue.
- Also by asking the person if they like a specific activity or item can help determine if it can be reinforcing.
- Using different types of stimulus help identifying reinforcers. Some stimulus assessments include, single stimulus assessment, paired stimulus assessment, and/or multiple stimulus assessment.

Differential Reinforcement of Other Behaviour (DRO)

Differential Reinforcement of Other Behaviours is a procedure in which the reinforcer is delivered after intervals of time in which the problem behaviour does not occur. DRO involves reinforcing the absence of the problem behaviour.

An example of DRO is:

- A little girl is a thumb-sucker at nap time, her mother would read her stories at nap-time (highly preferred) when she was not sucking her thumb her mother would read her the story. As soon as she started to suck her thumb her mother would stop reading her story. Her sitting and listening to the story (her thumb-sucking did not occur) which is reinforced by her mother reading to her.
Implementing a DRO

Miltenberger (2012) created steps to implement a DRO, there are six steps to complete. The six steps are as follows:

1. Identify the reinforcer for the problem behaviour.
2. Identify the reinforcer to use in the DRO procedure.
3. Choose the initial DRO time interval.
4. Eliminate the reinforcer for the problem behaviour and deliver the reinforcer for the absence of the problem behaviour.
5. Reset the interval if the problem behaviour occurs.
6. Gradually increase the interval length.

Measuring of DROs

There are two different ways to measure DROs, there is whole-interval DRO and momentary DRO. Whole-interval occurs when the behaviour is absent throughout the entire interval and momentary occurs when the behaviour is absent when the interval ends.

Differential Reinforcement of Incompatible Behaviours

Differential Reinforcement of Incompatible Behaviours is when an alternative behaviour is physically impossible to complete with the target behaviour. This means that the two behaviours cannot occur at the same time.

Differential reinforcement of incompatible behaviours is also known as omission training because it stops the occurrence of targeted behaviour.

For example, if a person partakes in head-slapping behaviour the alternative behaviour would be hands on their side. They cannot partake in both behaviours.
Chapter 4: Punishment

In contrast with reinforcement, punishment is the process where after a stimulus is presented or removed there is a decrease in the likelihood the behaviour will occur in the future.

Punishment can be defined as three parts:

- A specific behaviour occurs.
- A consequence immediately follows the behaviour.
- As a result, the behaviour is less likely to occur again in the future.

Punishment

- A punisher is a stimulus or event that can decrease the probability of the behaviour occurring in the future.
- Punishers are also called aversive stimulus. In some instances, like negative reinforcement the punishers (aka aversive stimuli) are removed so the behaviour will be less likely to occur in the future. This is called negative reinforcement.
- The difference between punishment and reinforcement is reinforcement strengthens and increases the likelihood of a behaviour occurring; whereas punishment weakens and decreases the likelihood of behaviour occurring in the future.

There are many factors that can influence the effectiveness of punishment. The main factors focus on how the punisher can differ according to individual and behaviour.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediacy</td>
<td>A stimulus is more effective as a punisher when it is delivered immediately after the behaviour.</td>
<td>The student makes a sarcastic comment in class and the teacher immediately gives her an angry look. The student immediately stops the behaviour and does not do it again.</td>
</tr>
<tr>
<td>Contingency</td>
<td>A stimulus is more effective as a punisher when it is delivered contingent on the behaviour.</td>
<td>A rat receives an electric shock each time it presses the bar, the bar-pressing behaviour stops.</td>
</tr>
<tr>
<td>Magnitude and Individual Differences</td>
<td>Punishers vary depending on each individual. In general, a more intense aversive stimulus is a more effective punisher.</td>
<td>Hot or cold weather can influence people to stay inside or outside depending on the range in temperature and individual preferences. Cold weather may be punishing for some</td>
</tr>
</tbody>
</table>
| Motivating Operations | Establishing operations (EO) makes a stimulus more effective as a punisher at a specific time. Abolishing operations (AO) make a stimulus less potent as a punisher at a specific time. | EO: Being sent to bed without dinner for “bad behaviour
AO: Catching someone eating a cookie at dinner and making them eat all their dinner even if they are full. |

### Positive Punishment

Positive punishment can be defined as:

- the occurrence of a behaviour
- is followed by the presentation of an aversive stimulus
- which results in the behaviour being less likely to occur in the future

In order to positively punish a behaviour, an aversive stimulus needs to be added that will result in the cessation of the behaviour.

Some examples include:

- The behaviour of looking down while riding his bike resulted in the presentation of a painful stimulus when Ed hit the car.
- Reading while in a moving vehicle was immediately followed by the occurrence of an upset stomach
- Kevin’s telling jokes about his wife’s cooking resulted in a very icy stare from his wife.

There are other names for positive punishment. These names are:

- Punishment by application
- Punishment by contingent presentation of a stimulus
- Punishment by presentation of an aversive stimulus
- Response-contingent presentation of a punisher

### Negative Punishment

Negative punishment can be defined as:

- the occurrence of a behaviour
- is followed by the removal of a reinforcing stimulus
- which results in the behaviour being less likely to occur in the future

In order to negatively punish a behaviour, a reinforcing stimulus needs to be removed that will result in the cessation of the behaviour.

Some examples include:

- The behaviour of hitting resulted in her not being able to play with her toys and her friends.
- Running the lawn mower over the hose resulted in him, resulting him not being able to use the hose.
Helen earns tokens for sitting quietly at the table, each time Helen got out of her seat, she would lose a token from her token board.

There are other names for negative punishment. These names are:
- Punishment by withdrawal
- Punishment by loss of reinforcers
- The penalty contingency
- Response-contingent removal of a positive reinforcer

Chapter Summary

<table>
<thead>
<tr>
<th>Positive Punishment</th>
<th>Negative Punishment</th>
</tr>
</thead>
<tbody>
<tr>
<td>- when an aversive stimulus is added to weaken or stop</td>
<td>- when a reinforcing stimulus is removed to weaken or</td>
</tr>
<tr>
<td>a behaviour</td>
<td>stop a behaviour</td>
</tr>
<tr>
<td>- Decrease the probability of a behaviour occurring in</td>
<td>- Decreases the probability of a behaviour occurring in</td>
</tr>
<tr>
<td>the future</td>
<td>the future</td>
</tr>
</tbody>
</table>

Punishment is not always the most effective course of action and should be used when all possible reinforcement strategies have been utilized. Miltenberger (2012) discovered that there are a few issues that surround using punishment. They are as follows:
- Punishment may produce elicited aggression or other emotional side effects.
- The use of punishment may result in escape or avoidance behaviours by the person whose behaviour is being punished.
- The use of punishment may be negatively reinforcing for the person using punishment, and thus may result in the misuse or overuse of punishment.
- When punishment is used, its use is modelled, and observers, or who are being punished, may be more likely to use punishment themselves in the future (e.g. spanking your children may result in them spanking children).
- Finally, punishment is associated with ethical issues and issues of acceptability.

If trying to determine if punishment is being used, use these questions:

1. What is the behaviour?
2. What happened immediately after the behaviour?
   a. Was an aversive stimulus added? (positive punishment)
   b. Was a reinforcing stimulus removed? (negative punishment)
3. What happened to the behaviour in the future?
   a. Was the behaviour strengthened? (punishment)
   b. Was it less likely to occur?
Chapter 5: Antecedent Control Procedures

When a behaviour occurs, there are stimuli that occur prior. These stimuli are called **antecedents**. **Antecedent Control Procedures** are procedures in which the antecedents are manipulated to influence the target behaviour. They can also be called antecedent manipulations.

**Types of Antecedent Control Procedures**

- Immediate Antecedents:
  - “triggers” being told “no” being asked to wait, certain noises, certain places, certain people, certain hairstyles.

- Altering Motivating Operations:
  - keeping deprivation low by supplying very high rates (sometimes unrealistic rates) of reinforcement

- Changing general aspects of the environment:
  - rearranging classrooms, changing the general noise level, this would include creating the environment

- Changing staff behaviour:
  - this includes approaching people differently, changing proximity, changing interaction styles, minimizing coercive interactions, changing the way staff members prompt individuals, etc.

Note that in certain occurrences some consequences of different target behaviour can end up becoming the antecedent for another.

Winston (2013) stated that antecedent manipulations extremely important. She gave the following reasons to support her theory.

- They can work immediately
- They require very little analysis
- They require no time spent teaching skills
- Anyone can implement them
- It makes it appear as though we are helping the person “get better”
- They reflect an understanding of the person’s likes and dislikes, which is generally a good thing to know about a person

**Chapter Summary**

Antecedent Control Procedures are environmental changes implemented before the behaviour in order to regulate frequency and help reduce challenging behaviours. Antecedent control procedures have been determined to help with decreasing behaviours.
References


Appendix E: PowerPoint Presentation of Workshop Literature

Staff Training
DANIELLE POIRIER-FROATS
DECEMBER 2017

Please Complete the Pre-Test

ANSWER TO YOUR BEST ABILITY
BEHAVIOURAL SKILLS TRAINING TO IMPROVE JOB KNOWLEDGE

Agenda

- Reinforcement
  - Types of Reinforcements
    - Positive Reinforcement
    - Negative Reinforcement
- Motivational Operations
  - Establishing Operations
  - Abolishing Operations
- Differential Reinforcement
  - Low rates of responding
  - Alternative behaviour
  - Other behaviours
  - Incompatible behaviours
- Punishment
  - Positive Punishment
  - Negative Punishment
  - Antecedent Control Procedures

Chapter 1: Reinforcement
Chapter 1: Reinforcement

Reinforcement can be defined as three parts:

- the occurrence of a specific behaviour
- when the behaviour is followed by an immediate consequence (both positive or negative)
- when it results in the strengthening of the behaviour

When a behaviour is strengthened, it involves an increase in its frequency, duration, intensity, and/or speed

Reinforcement Cont’d

Reinforcers

- are stimuli that will increase the future probability if a behaviour when the stimulus is delivered immediately after the behaviour.

Reinforcers can be either unconditioned or conditioned.

- Unconditioned = (primary reinforcer) automatically reinforcing
- Conditioned = (secondary Reinforcer) has been paired with a preferred activity
Types of Reinforcers

- Verbal Praise/Social
  - when completing a task or demand following the behaviour with a verbal acknowledgement such as “Way to go!”, “Good Job!”, “Yay!”
  - a high five, a smile, and/or tickles.

- Tokens
  - a small marker that can be used to track efficiency when completing tasks
  - can be in the form of sticker or checkmarks.

- Schedules of Reinforcement
  - often can be traded in (cashed-in) for another reinforcer once a predetermined amount is reached.

- Tangible
  - a preferred item that has been determined to be reinforcing
  - can be tablets, computer games, favourite toys

- Edible
  - a preferred food that can be easily presented after the occurrence of the target behaviour.

Types of Reinforcement

POSITIVE AND NEGATIVE
Positive Reinforcement

Positive reinforcement can be defined as:
- the occurrence of a behaviour
- is followed by the **addition** of a stimulus (reinforcer) or an **increase** in intensity of stimulus
- which results in the strengthening of a behaviour.

In order to positively reinforce a behaviour, a stimuli needs to be added that will result in the **continuation** of the behaviour.

An example includes:
- Getting candy from his mother when he is having a tantrum in the grocery store

Negative Reinforcement

Negative reinforcement is defined as:
- the occurrence of a behaviour
- is followed by the **removal** or **reducing** an aversive stimulus or **decrease** intensity of a stimulus
- results in the strengthening of the behaviour.

In order to negatively reinforce a stimuli needs to be **removed** that will result in the **continuation** of the behaviour.

An example includes:
- Removing a sound that is irritating to an individual in order for them to continue their work.
BEHAVIOURAL SKILLS TRAINING TO IMPROVE JOB KNOWLEDGE

Social and Automatic Reinforcement

- **Social Reinforcement** occurs when the behaviour produces a reinforcing consequence through the actions of another person.

- **Automatic Reinforcement** “occurs when the behaviour produces a reinforcing consequence through direct contact with the physical environment (p.267)” (Cooper, Heron, & Heward, 2007)

Examples of Types of Reinforcement

<table>
<thead>
<tr>
<th></th>
<th>Social</th>
<th>Automatic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Positive</strong></td>
<td>Your friend brings you candy after you ask</td>
<td>Giving yourself a treat for completing everything on your agenda</td>
</tr>
<tr>
<td><strong>Negative</strong></td>
<td>You friend turning off the light cause it hurts your eyes</td>
<td>Scratching your arm to relieve an itch</td>
</tr>
</tbody>
</table>
Factors that Influence Reinforcement Effectiveness

**Immediacy**
A stimulus is more effective as a reinforcer when it is delivered immediately after the behaviour.
- Giving a dog a treat after 2 seconds when he sat down (the demand). Providing the reinforcement for sitting.

**Contingency**
A stimulus is more effective as a reinforcer when it is delivered contingent on the behaviour. A person is more likely to repeat a behaviour when it results in a reinforcing consequence.
- Every time you turn the key in the ignition, the car starts.

**Magnitude**
Generally, a more intense stimulus is a more effective reinforcer.
- A person would work longer and harder for a larger amount of money than a smaller amount.

---

**Individual Differences**
Reinforcers vary from person to person.
- Praise may be meaningless to some people, even though it is a reinforcer for others.

**Motivating Operations**
Establishing operations (EO) makes a stimulus more effective as a reinforcer at a specific time.
- When someone is given water after not drinking for a whole day, they are more likely to be thirsty.

**Abolishing operations (AO)** make a stimulus less potent as a reinforcer at a specific time.
- When someone is offered food after eating a large meal, they are less likely to be hungry.
Motivating Operations are an antecedent stimulus or event that alters the value of a reinforcer or punisher alters the frequency of all behaviour that has been reinforced or punished by the stimulus object or event (Cooper, Heron, & Heward, 2007).

- There are two types of Motivating Operations
  - Establishing Operations
  - Abolishing Operations
Establishing Operations (EO)

- A type of motivating operation which occurs when an event increases the effectiveness of a specific reinforcer at a particular time and evokes the behaviour that produces that reinforcer.

- Deprivation is a type of establishing operation that increases the effectiveness of most unconditioned reinforcers and some conditioned ones.

Abolishing Operations (AO)

- A type of motivating operation which occurs when an event decreases the effectiveness of a specific reinforcer at a particular time and makes the behaviour that produces the behaviour less likely to occur.

- Satiation is a type of abolishing operation that occurs when a person recently consumes a large amount of a particular reinforcer.
<table>
<thead>
<tr>
<th>Establishing Operation</th>
<th>Abolishing Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Can make a reinforcer more effective</td>
<td>- Can make a reinforcer less effective</td>
</tr>
<tr>
<td>- Has been deprived of reinforcer</td>
<td>- Has been satiated</td>
</tr>
</tbody>
</table>

Chapter 3: Differential Reinforcement
BEHAVIOURAL SKILLS TRAINING TO IMPROVE JOB KNOWLEDGE

**Differential Reinforcement of Low Rates of Responding (DRL)**

- occurs when a reinforcer is delivered contingent on a lower rate of responding during a period of time.
- the reinforcer is given when the rate of the target behaviour is decreased to where it meets the criterion level.
- do not reinforce the absence of the target behaviour, like a DRO, instead reinforce the lower rate target behaviour.

Two variations of DRL

- full session: occurs when there are fewer than X responses that occur in the session
- spaced-responding: occurs when the response occurs after an interval amount of time.

**DRL Cont’d**

Implementing DRL Procedures:

1. Determine whether DRL is the right procedure to use.
   - DRL is appropriate when the goal is to decrease the rate of a behaviour but not trying to eliminate it.

2. Determine an acceptable level of behaviour.
   - Full-session DRL must have a pre-determined amount of responses per session.
   - Spaced-responding DRL must have an interval of time that must pass between each occurrence of the target behaviour.
Differential Reinforcement of Alternative Behaviours (DRA)

- is the procedure used to increase the frequency of a desired behaviour and to decrease the frequency of undesirable behaviour.
- DRA results in an increase in the future probability of the desirable behaviour occurring. At the same time, any undesirable behaviours that may interfere with the desirable behaviour is not reinforced.
- DRA involves the combing reinforcement for a desired behaviour and extinction of undesirable behaviour.
  - Extinction occurs when a previously reinforced behaviour is no longer followed by the reinforcing consequences, the frequency of the behaviour decreases in the future.

DRA Cont'd

When implementing a DRA ask three questions:

1. Does someone want to increase the desirable behaviour rate?
2. Is the behaviour occurring occasionally already?
3. Can you gain access to a reinforcer for immediate delivery after the behaviour?

To reinforce an alternative behaviour, the behaviour needs to at least occur occasionally. This removing the need to teach the target behaviour. If the behaviour does not occur, DRA is not the right method of reinforcement.
If shaping and chaining a behaviour is needed, DRA may then be used to strengthen the behaviour and maintain the behaviour as it has already been acquired as a behaviour.

**Defining the Desirable and Undesirable Behaviour**

- When defining the desirable behaviour make sure it is clearly defined as one would want to increase. This will ensure that all implementers are looking for the same behaviours.

- When defining the undesirable behaviour make sure it is a clear definition as it will help determine if the undesirable behaviour will decrease due to the use of DRA.

**Identify the Reinforcer**

- Using a reinforcer that is currently maintaining the undesirable behaviour. Since the behaviour is already being reinforced, it can be determined that the reinforcer is already successful and reinforcing.

- By observing the person and take notes on what activities and toys they pursue.

- Also ask the person (of applicable) if they like a specific activity or item, they do know best.

- Using types of stimulus assessment can be helpful in these situation where verbal confirmation is unavailable.
Differential Reinforcement of Other Behaviours (DRO)

- a procedure in which the reinforcer is delivered after intervals of time in which the problem behaviour does not occur. DRO involves reinforcing the absence of the problem behaviour.

Variations of DROs
- Whole-interval DRO occurs when the behaviour is absent throughout the entire interval.
- Momentary occurs when the behaviour is absent when the interval ends.
- Both types of DRO occur when a reinforcer is delivered.

Implementing a DRO

1. Identify the reinforcer for the problem behaviour.
2. Identify the reinforcer to use in the DRO procedure.
3. Choose the initial DRO time interval.
4. Eliminate the reinforcer for the problem behaviour and deliver the reinforcer for the absence of the problem behaviour.
5. Resent the interval if the problem behaviour occurs.
6. Gradually increase the interval length.
Differential Reinforcement of Incompatible Behaviours (DRI)

- When an alternative behaviour is physically impossible to complete with the target behaviour. This means that the two behaviours cannot occur at the same time.
- Differential reinforcement of incompatible behaviours are also known as omission training because it stops the occurrence of targeted behaviour.
  - For example, if a person partakes in head-slapping behaviour the alternative behaviour would be hands on their side. They cannot partake in both behaviours.

Chapter 4: Punishment
In contrast with reinforcement, punishment is the process where a stimulus is presented or removed that decreases the likelihood the behaviour will continue.

Punishment can be defined as three parts:

- A specific behaviour occurs.
- A consequence immediately follows the behaviour.
- As a result, the behaviour is less likely to occur again in the future.

a stimulus or event that can decrease the probability of the behaviour occurring in the future. Punishers are also called aversive stimulus.

Punishers are also called aversive stimulus. In some instances, like negative reinforcement the punishers (aka aversive stimuli) are removed so the behaviour will be less likely to occur in the future.
Influences of Punishment

Immediacy

- A stimulus is more effective as a punisher when it is delivered immediately after the behaviour.
- The student makes a sarcastic comment in class and the teacher immediately gives her an angry look.

Contingency

- A stimulus is more effective as a punisher when it is delivered contingent on the behaviour.
- A rat receives an electric shock each time it presses the bar; the bar-pressing behaviour stops.

Influences of Punishment Cont’d

Magnitude and Individual Differences

- Punishers vary depending on each individual. In general, a more intense aversive stimulus is a more effective punisher.
- Hot or cold weather can influence people to stay inside or outside depending on the range in temperature and individual preferences.

Motivating Operations

Establishing operations (EO) makes a stimulus more effective as a punisher at a specific time.
- EO: Being sent to bed without dinner for “bad behaviour”

Abolishing operations (AO) make a stimulus less potent as a punisher at a specific time.
- AO: catching someone eating a cookie at dinner and making them eat all their dinner, even if they are full and cannot eat anymore.
Positive punishment can be defined as:
- The occurrence of a behaviour
- Is followed by the presentation of an aversive stimulus
- Which results in the behaviour is less likely to occur in the future

In order to positively punish a behaviour an aversive stimuli needs to be added that will result in the discontinuation of the behaviour.

An example includes:
- Kevin’s telling jokes about his wife’s cooking resulted in a very icy stare from his wife.

There are other names for positive punishment. These names are:
- Punishment by application
- Punishment by contingent presentation of a stimulus
- Punishment by presentation of an aversive stimulus
- Response-contingent presentation of a punisher
Negative punishment can be defined:
- The occurrence of a behaviour
- Is followed by the removal of a reinforcing stimulus
- Which results in the behaviour is less likely to occur in the future

In order to negatively punish a behaviour, a reinforcing stimuli needs to be removed that will result in the discontinuation of the behaviour. An example includes:
- Each time Helen got out of her seat, since she got out of her seat she lost a token from her token board.

There are other names for negative punishment. These names are:
- Punishment by withdrawal
- Punishment by loss of reinforcers
- The penalty contingency
- Response-contingent removal of a positive reinforcer
Is punishment the best course of action?

Punishment is not always the most effective course of action.

Miltenerger (2012) discovered that there are a few issues that surround using punishment. The use of punishment:

- may produce elicited aggression or other emotional side effects.
- may result in escape or avoidance behaviours by the person whose behaviour is being punished.
- may be negatively reinforcing for the person using punishment, and thus may result in the misuse or overuse of punishment.
- may be modelled, and observer’s behaviour may be more likely to use punishment themselves in the future.
- is associated with ethical issues and issues of acceptability.

If trying to determine if punishment is being used, ask these questions:

1. What is the behaviour?
2. What happened immediately after the behaviour?
   - Was an aversive stimulus added? (positive punishment)
   - Was a reinforcing stimulus removed? (negative punishment)
3. What happened to the behaviour in the future?
   - Was the behaviour strengthened? (punishment)
   - Was it less likely to occur?
Chapter 5: Antecedent Control Procedures

When a behaviour occurs, there are stimuli that occur prior. These stimuli are called **antecedents**.

**Antecedent Control Procedures** are procedures in which the antecedents are manipulated to influence the target behaviour.

Note that in certain occurrences some consequences of a different target behaviour can end up becoming the antecedent for another.
BEHAVIOURAL SKILLS TRAINING TO IMPROVE JOB KNOWLEDGE

Antecedent Control Procedures

- Immediate Antecedents: “triggers” being told “no” being asked to wait, certain noises, certain places, certain people, certain hairstyles.
- Altering Motivating Operations: keeping deprivation low by supplying very high rates (sometimes unrealistic rates) of reinforcement
- Changing general aspects of the environment: rearranging classrooms, changing the general noise level, this would include creating the environment
- Changing staff behaviour: this includes approaching people differently, changing proximity, changing interaction styles, minimizing coercive interactions, changing the way staff members prompt individuals, etc.

when a behaviour occurs, there are stimuli that occur prior. these stimuli are called antecedents.

Antecedent Control Procedures are procedures in which the antecedents are manipulated to influence the target behaviour.
Types of Antecedent Control Procedures

- Immediate Antecedents: “triggers” being told “no” being asked to wait, certain noises, certain places, certain people, certain hairstyles.
- Altering Motivating Operations: keeping deprivation low by supplying very high rates (sometimes unrealistic) of reinforcement
- Changing general aspects of the environment: rearranging classrooms, changing the general noise level, this would include creating the environment
- Changing staff behaviour: this includes approaching people differently, changing proximity, changing interaction styles, minimizing coercive interactions, changing the way staff members prompt individuals, etc.

References