

March 2019

An Evaluation of a Modified Behavioral Skills Training Procedure for Teaching Poison Prevention Skills to Children with Developmental Disabilities

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An Evaluation of a Modified Behavioral Skills Training Procedure for Teaching Poison
Prevention Skills to Children with Developmental Disabilities

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
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Date of Approval:
March 14, 2019

Keywords: poison safety, safety skills, least-to-most prompting, system of least prompts

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Abstract

Although household product, such as pharmaceuticals and cleaning chemicals, are part of a child's everyday life, accidental poisonings can occur as a result of ingestion. Children diagnosed with developmental disabilities are even more susceptible to being injured when they come into contact with these poisonous agents. Behavioral approaches have been used extensively to teach safety skills to children with disabilities. However, those that targeted poison prevention skills required additional methods that were more intrusive for the child to acquire the skills. Thus, the purpose of this study was to evaluate the efficacy of a modified behavioral skills training package that incorporates a system of least prompts. Results showed that BST and system of least prompts increased poison prevention skills for all three participants and the skills maintained at follow-up.

Keywords: poison safety, safety skills, least-to-most prompting, system of least prompts

Chapter 1:

Introduction

Each day in the United States, hundreds of childhood injuries are medically treated and nearly two deaths occur as a result of being poisoned (Centers for Disease Control and Prevention [CDC], 2016). Many of these poisoning injuries and fatalities result from access to medications, cleaning products and toxic chemicals found throughout the home (CDC, 2016). Despite the many tips and resources provided to parents and caretakers to help prevent poisonings, unintentional poisonings remain one of the leading causes of childhood injury (Borse et al., 2009; World Health Organization, 2010). Studies have shown that educating families can help promote safe storage of medicines and household products. However, there is a lack of evidence to indicate these interventions as effective methods for decreasing poisoning rates (Wynn et al., 2016). This discrepancy suggests that children will continue to encounter potentially poisonous agents when unsupervised. Furthermore, children diagnosed with developmental disabilities (DD) are most at risk for poisoning (Sinclair & Xiang, 2008). Therefore, this population should be provided with training that teaches them to engage in safe behaviors when poisoning substances are present in their surroundings.

Researchers in the field of applied behavior analysis have targeted a variety of important safety skills to teach to individuals with developmental disabilities including abduction prevention (Gunby, Carr, & LeBlanc, 2010), sexual abuse prevention (Lumley, Miltenberger, Long, Rapp, & Roberts, 1998), pedestrian safety (Batu, Ergenekon, Erbas, & Akmanoglu, 2004;

Page, Iwata, & Neef, 1976), and fire emergency (Luiselli, 1984; Bannerman, Sheldon, & Sherman, 1991). However, only a few have focused on poison prevention skills. Dancho, Thompson, and Rhoades (2008) used instruction, modeling, rehearsal, and feedback, also known as, behavioral skills training (BST) to teach a group of 15 typically developing children to ask for permission before ingesting a potentially poisonous substance. Three of the children did not perform the safety skill following training and required in situ feedback and response interruption to avoid ingesting the substance in subsequent assessments.

In another study, King and Miltenberger (2016) used video modeling to train poison safety skills of children diagnosed with autism spectrum disorder (ASD). The children watched interactive videos that focused on the appropriate steps to take in response to coming into contact with a pill container – don't touch it, get away from it, and tell an adult. Assessments in baseline revealed that all of the children touched the pill container and one child removed the pills from the container. Video modeling was not effective but skill acquisition occurred following in-situ training for two of the children and an incentive condition for the third participant.

Although each employed different populations, a similar limitation exists between these two studies. The initial training procedures (i.e., BST and video modeling) in each study were not reliable methods alone to teach poison safety skills. Additional, more intensive behavioral interventions were necessary for the children to acquire the skills. Similar to these findings, BST and IST has been shown to be effective for teaching other skills to individuals with DD (Gunby et al., 2010; Miltenberger et al., 1999). This suggest that more intrusive techniques may need to be incorporated into poison prevention skills training for children, in particular, those diagnosed with ASD.

Another way to help children diagnosed with autism learn new skills is the use of various prompting strategies. Prompts are antecedent stimuli used to evoke a desirable behavior in the presence of the discriminative stimuli (S^D) so it can be reinforced during skill acquisition (Miltenberger, 2012). During a learning trial, the trainer gives the learner an opportunity to independently respond to the natural (S^D) within a predetermined amount of time (e.g., 5 s). If the target behavior does not occur, the system of least prompts (SLP) can be used to obtain a correct response from the learner.

SLP, also known as least-to-most prompting, is a common strategy used to teach discrete or chained tasks. It involves gradually increasing the level of a prompt when a learner responds incorrectly or does not respond to an S^D within a specified amount of time. Once the least intrusive prompt is delivered, the learner is given another opportunity to respond. The trainer progresses through the hierarchy until all prompts have been delivered or the learner performs the correct response. The prompt hierarchy often includes but is not limited to verbal, gestural, modeling and verbal prompts. (Wolery, Ault, Doyle, 1992; Doyle, Wolery, Ault & Gast, 1988).

Several studies have found SLP to be an effective instructional approach for teaching individuals with autism or moderate to severe intellectual disabilities to acquire skills such as sports (Yilmaz, Konukman, Birkan & Yanardağ, 2010), personal hygiene (Probst & Walker, 2017), and office tasks (Smith et al., 2015). In particular, Basette et al. (2018) added a SLP procedure to video modeling to teach students with intellectual disabilities safety skills using cell phones when lost in the community. Students viewed a video in which a model: (a) acknowledged being lost, (b) stated the need to capture a picture to send to an instructor that could help pinpoint her location, and (c) pointed to a stimulus in the current environment (i.e., a sign) to send to the teacher. Students also watched a second video demonstrating how to take and

send photos using a cell phone. The learner then practiced the skills through role-plays. If the participant did not respond independently, the researcher implemented the SLP procedure to help the student take and send the photo. Researchers found that all participants quickly acquired the safety skill with minimal prompting.

Although several studies have evaluated SLP for teaching skills to individuals with disabilities, its use has yet to be examined for teaching poison prevention skills. Similarly, the methods that have been used to teach poison safety, such as BST and video modeling, have not been successful alone. Therefore, the purpose of this study is to assess the effectiveness of a modified behavioral skills training procedure that incorporates SLP to teach poison safety skills to children diagnosed with autism.

Chapter 2:

Methods

Participants and Setting

Three children, ages 6 to 8, participated in this study. James was a 6-year-old boy, diagnosed with autism, speech-language disorder and Eosinophilic Esophagitis (EoE). He spoke using simple sentences. Paul was a 6-year-old boy diagnosed with autism. He had muscular incoordination and immune dysfunction. Paul used 3-5-word utterances to communicate. Iris was an 8-year-old girl diagnosed with autism and Epilepsy. She used 2-3-word phrases but had difficulty with back-and-forth communication. All participants fell under the category of verbal-vocal communicators. Each child was selected based on the following criteria: (a) no prior training on poison safety skills (b) received applied behavior analysis services in a clinical setting at local behavioral therapy clinic c) attended the school at least three times a week and (d) could report to an adult a stimulus or event that occurred in their presence. During the probe, the participants' therapist asked the child to identify an item or activity (i.e., dancing, eating, coloring) that he or she was engaged in within a minute following the termination of the item or activity. The following were exclusion criteria for the study: (a) child only received behavioral therapy services in-home (b) child had behavioral challenges such as noncompliance or task refusal that would interfere with his or her ability to participate in training. Any participant that did not meet recruiting requirements was not included in the study.

All phases of the study took place at a local behavioral therapy clinic, specializing in education for children with developmental disabilities. All assessments took place in 5m x 5m

therapy or playrooms filled with toys, activities, and either a central table or play rug. For example, the designated music room contained instruments and musical toys. The reading room was filled with books, a computer and two iPads for children to work on a reading program. The arts & crafts room consisted of painting supplies and playdough.

During the recruitment process, a description of the study was provided to parents. Those who showed interest in participating were sent an informed consent form which described the study and included the researcher's contact information. The researcher met with each family, described the requirements for participating, and answered any questions. The first three children were chosen from those whose parents have provided consent and met the inclusion criteria.

Materials

The materials used in this study were white and colored empty gelatin capsules and a camera with an HDMI video function (Sony Handy Cam HDR-CX405) for data collection purposes only. The gelatin capsules were placed in clear and colored prescription bottles and clear Ziploc bags.

Dependent Measures and Data Collection

The dependent variable was the safety score participants received based on the steps completed correctly for each in-situ assessment. In response seeing the pill container, the target safety skills were: do not touch the pill container, leave the room where it is located, and alert an adult about the presence of the pills. Observers coded the safety skills on a 4-point scale as follows: 0 = touched the pill container; 1 = did not touch the pill container, but did not leave the area within 30 s of entering the room; 2 = did not touch the pill container, left the area within 30 s of entering the room, but did not tell an adult about the presence of the pills or did not leave the room within 30 s and did not touch the pill container but told an adult about the presence of the

pill; 3 = did not touch the pill container, left the room within 30 s, and told an adult about the presence of the pills. The 30 s began once the child entered the room. In almost all cases, the child saw the pill within a few seconds of entering the room. Telling an adult was defined as the participant vocally saying either “pills” or “medicine.”

Data were also collected on the following behaviors if they occurred: any attempts to open the container, opening the container, touching the pills, removing the pills from the container, and putting the pills in the mouth (see Appendix C). Each data collector had a sheet on which he or she marked the occurrence or nonoccurrence of the target steps. The hidden assessor (principal investigator) recorded whether the child touched the container and left the room within 30 s. The therapists recorded whether the child reported the pills. Using both observers’ recordings, the child was given a score based on the aforementioned 4-point scale.

The skills were assessed without the participants’ knowledge during baseline, intervention, and follow up assessments. Prior to assessments, a pill container was placed in an obvious location (e.g., table, toy bin, counter). The participant’s assigned therapist asked the child to go to the designated room or location where the pill container could be found, for some reason (e.g., to engage in an activity or work, to play with a particular toy). Reasons and locations differed for each subsequent assessment. A camcorder or the principal investigator (unseen) were present to record responses when the participant encountered the pill container. Occasionally, the PI would remain hidden in the room or observe the child through the window panel above the door.

Prior to the start of the study, therapists were trained on data collection and response to the child engaging in the target behavior. Therapists were individually trained using role-plays, in which the researcher took on the role of the child. During some role-plays, correct and

incorrect responses were presented. The therapists practiced collecting data and were given the opportunity to rehearse the appropriate protocol (see Appendix A). The researcher provided corrective feedback immediately after role plays and data collection.

Interobserver Agreement

Interobserver agreement (IOA) was conducted for at least 44% of all data collection opportunities. To assess interobserver agreement, the principal investigator served as the primary observer for whether the child touched the pills and left the room. A research assistant also collected data on the child's response by viewing the video. The therapist acted as the primary observer for whether the child reported the pills. If the child reported the pills while the principal investigator was present, that person acted as the reliability observer. An agreement was defined as occurring when both observers indicated that a target behavior did or did not occur during each observation (see Appendix D). Interobserver agreement was calculated by taking the number of agreements divided by the number of agreements plus disagreements and then multiplying by 100. During baseline, data were collected during 50% of the assessments for James, 40% of the assessments for Paul, and 42% of the assessments for Iris. During intervention, IOA data were collected during 25% of the assessments for James, 50% of the assessments for Paul, and 67% of the assessments for Iris. Agreement of correct performance was 100% for all assessments for all three participants.

Experimental Design and Procedures

A non-concurrent multiple baseline design across participants was used to assess the effectiveness of the modified BST procedure. Three conditions were assessed in this study: baseline, modified BST, and follow up.

Baseline. During the baseline condition, the therapist gave the participant an instruction that involved the designated room or location. Sample instructions included: “Go to the music room and play with the piano,” “Sit at the computer to play Head Sprout.” The therapist remained in a separate room or hall from where the pills were located. If the child did not leave the area within 30 s, the therapist returned to the room, and asked the participant to come with him/her to another room. The research removed the pill container following their departure. Therapists did not provide feedback on the participant’s performance during assessments. However, praise was provided if the participant reported the presence of the pill container.

Modified behavioral skills training. Following baseline, the researcher conducted BST sessions that incorporated SLP as needed. While the therapist completed the role plays for the safety skills, she simultaneously provided the corresponding instruction. For example, the therapist pretended to find the pill container and the therapist said “when you find pills, do not touch” as she dramatically stepped away from the container. The therapist then provided the instruction to leave the room and tell an adult while the researcher had the child follow the therapist to observe the completion of these steps. The researcher and therapist conducted this part of the training three times for the participant to view the appropriate steps.

Following instruction and modeling, the participant was asked to rehearse the skills. A least-to-most prompting hierarchy was used to encourage independent responding. The prompts are as followed: (a) verbal prompt (b) modeling prompt (c) partial physical guidance (d), full physical guidance and (e) no prompt: the step was completed independently. The researcher told the participant “Show me what to do when you see pills” and moved away from the participant’s line of sight outside of the room. If the participant did not complete a step independently within 5

s, the researcher approached the participant and used the prompt sequence to help the participant complete the skills.

For example, the researcher would provide a verbal prompt stating the safety step (e.g., “leave the room”). If the child did not complete the step or did so incorrectly, the researcher would restate the step and model leaving the room. The researcher would then observe if the participant could complete the step. If the child did not complete the step after having it modeled, a partial physical prompt was provided to guide him or her towards the hall or outside the door. If that prompt was not effective, the researcher would use full physical prompt by gently moving the client forward until he or she reached the therapist. For the step of telling an adult, only verbal and modeling prompts were applicable. Verbal prompts included telling the child to say “medicine” or “pills” when they had found the therapist. The modeling prompt involved the child watching the researcher tell the therapist about the presence of the pills. Praise was provided for correct performances of the safety skills following prompts. The required prompt levels for each response were recorded on a data sheet (see Appendix B).

One BST session with intervals between scenarios was conducted for each participant. The entire training was completed in one day within 30 to 45 min. The session included three different scenarios in which the training occurred. The scenarios had a combination of the following: different pills, pill container or room. Once participants mastered the skill in the first scenario, he or she was provided a break before training began in the subsequent scenario. The participant then continued to rehearse the skills (e.g., finding the prescription bottle in the playroom, Ziploc bag on the computer or toy bin). During each scenario, the child had to complete each step 100% independently, two times, before moving on to training in the next

scenario. Once the students demonstrated 100% correct independent responding twice for the three different scenarios, post-training probes were conducted.

Within 1-4 days following the training sessions, an in-situ assessment was conducted in the same manner as baseline. Assessments took place in five different rooms with either different pills, pill containers or both. Assessments continued until at least three consecutive scores of 3 was reached.

Booster training. If the participant failed to demonstrate the safety skills during the in situ assessment (scores less than a 3), the researcher provided a booster training within 1 to 3 days. If the participant demonstrated all the target skills, specific praise was provided, followed by in-situ assessments within 1 to 4 days.

Follow-up assessment. One to two weeks following the completion of the intervention, one to two follow-up probes were conducted to determine if the safety skills have been maintained.

Treatment Integrity

A checklist listing the modified BST procedures carried out by the researcher, during each session was completed by an independent observer (see Appendix E). If a step was completed correctly, a check was marked next to that step. If a step was completed incorrectly, an 'X' was marked next to that step. If a step was not observed or unnecessary (i.e., the child did not need corrective feedback), 'N/A' was written next to that step. Treatment integrity was calculated for each assessment by adding the number of steps performed correctly divided by the total number of applicable steps and then multiplied by 100. Treatment integrity data were collected for 100% of the intervention assessments for James, 50% of the assessments for Paul, and 100% of the assessments for Iris and was 100% for all three students.

Social Validity

At the end of the study, the researcher administered an in-person questionnaire to therapists (see appendix F). The questionnaire assessed any possible differences in the child's behavior and emotions following intervention. They also answered questions regarding the acceptability and effectiveness of the intervention.

Chapter 3:

Results

During baseline assessments, none of the participants performed all the poison safety skills. Two of the three children touched the pills at least twice. The results shown in figure 1 demonstrate that the safety scores increased once the modified BST intervention was applied. This effect was consistent across individuals. Although there was a slight increase in baseline for one of the participants in assessment 4, the safety scores immediately returned to previous baseline levels during the following assessment. Also, none of the participants made any attempts to open the pill container to remove, touch, or ingest the pills.

In baseline, James scored two consecutive scores of 0 because he stayed in the room and touched the pill container. Once the intervention was implemented, his score increased to 3 for four assessments and was maintained during his 1- and 2-week follow up assessments.

When Paul encountered a pill container in the environment, he did not touch it; however, he did not leave the area nor tell an adult. During assessment 4, he left the area without touching the pills but did not tell an adult. Although Paul demonstrated he could engage in the target behaviors in BST, he did not demonstrate the skills during the initial assessment following intervention and required a booster session. Following the booster session, Paul's safety score increased to three consecutive scores of 3 and maintained at his 1-week follow-up.

During most baseline assessments, Iris touched the pill container and earned a score of 0. She received a score of 1 in assessment four because she did not touch the pills but remained in

the room and did not tell an adult. Following the introduction of the modified BST condition, Iris mastered the skills and maintained a score of 3 through intervention and 1-week follow-up.

Table 1 shows the data collected on the number of prompts each participant needed to reach mastery criterion during training in each scenario. Participants required mostly verbal and modeling prompts to acquire the safety steps. Across assessments, zero to four prompts were necessary for children to reach mastery criteria.

Therapists completed the side effects and social validity questionnaire after their clients completed the study. Overall, therapists rated the study as a positive experience. Regarding changes in their client from baseline to intervention, therapist reported their clients had become much more cautious. All indicated that they were very pleased with their clients' participation. Modified BST was also rated an acceptable training method for other settings. Responses from the survey are presented in Table 1. One therapist reported their client being a little distress following the intervention. She clarified that her client was unhappy having to practice the skill as many times as she did.

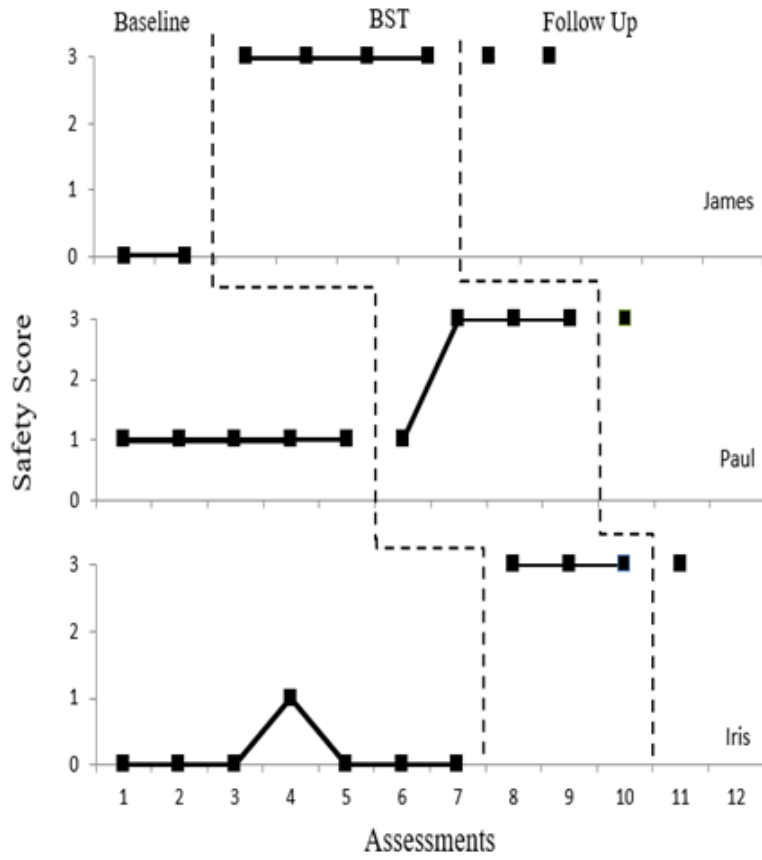


Figure 1. Results for all subjects. The graph displays the safety scores across participant during each condition.

Table 1*Number of Prompts to Mastery Criterion*

James	Scenario 1	Scenario 2	Scenario 3
Do not touch pill	3	2	0
Leave the room	2	2	0
Tell an adult	0	1	0

Paul	Scenario 1	Scenario 2	Scenario 3
Do not touch pill	0	1	0
Leave the room	3	1	0
Tell an adult	3	1	0

Iris	Scenario 1	Scenario 2	Scenario 3
Do not touch pill	2	3	3
Leave the room	2	3	2
Tell an adult	2	4	2

Note: This table summarizes the number of prompts each child required to meet the two-assessment mastery criterion for the 3 scenarios.

Table 2*Social Validity Results-Therapists*

Item	Therapist 1 (Cindy)	Therapist 2 (Tonya)	Therapist 3 (Vanessa)
1. What changes have you seen regarding your client being cautious around medication from baseline to intervention?	Very cautious	Very cautious	Very cautious
2. To what extent has your client experienced being upset following the intervention?	No change	No change	A little upset
3. Please describe any other changes you have seen in your client.	—	—	—
3. How pleased are you with your client's participation?	Very pleased	Very pleased	Very pleased
4. How acceptable do you think this would be as a training method for families, schools and community centers?	Very acceptable	Very acceptable	Very acceptable

Note: This table summarizes the therapists' responses from the side effects questionnaire.

Chapter 4:

Discussion

The purpose of this study was to examine the effectiveness of a modified behavioral skills training procedure that incorporated least-to-most prompting to teach poison safety skills to children diagnosed with autism. Adding to the literature on effective teaching methods, this study showed that modifying BST to include a common strategy used to teach new skills to individuals with ASD resulted in successful skill performance for all participants.

Although BST alone has been shown to be effective for teaching some children, safety skills have about a 50% chance of generalizing to the natural environment and often require the addition of an in-situ training component. Himle, Miltenberger, Flessner, and Gatheridge (2004) initially taught gun safety skills to children using BST. Only three of the eight children demonstrated all the skills correctly during in situ assessments after BST. The other five children required BST and in situ training before demonstrating the skills during in situ assessments. Similarly, Miltenberger et al. (2004) found that only half of the children exhibited the gun safety skills during in situ assessments following BST and the other half required BST and in situ training. However, in the current study, in situ training was not required following intervention. Correct responding occurred almost immediately during intervention assessments after the children received training with BST and SLP.

This study was an enhancement of BST because the child was in the presence of the pills and had to step out of the room to tell the therapist. This may have created more realistic

stimulus control compared to some other studies where the researcher was right by the child waiting to provide a prompt. It may have helped promote generalization because the participants were practicing under the stimulus control that was more likely during in-situ assessments.

The results of this study exceeded those found in King and Miltenberger (2016), which examined the use of video modeling for teaching poison prevention skills to children diagnosed with ASD. The initial intervention was not effective and in-situ training was added to video modeling to enhance the treatment outcomes. In the current study, embedding the system of least-to-most prompting into the intervention yielded quicker skill acquisition and eliminated the need for in-situ training. Because the prompts are self-fading, the more intrusive prompts were not always necessary.

This study also expanded on previous research that explored teaching poison prevention skills to children diagnosed with ASD (King & Miltenberger, 2016). The findings are particularly relevant for special educators and parents who are seeking different approaches to safety skills for children with disabilities. It offers a more seamless treatment package that is time-effective and a socially desirable option.

In summary, this study is currently the only study that evaluates the use of BST and a system of least prompts to teach poison prevention skills. Results indicated that all participants reached criterion once the intervention was applied. Overall, the addition of prompts was beneficial for all participants when they failed to complete a step or did so incorrectly during training. The strategies included in this study could be used to address one of the many safety risks faced by this population.

A few limitations were identified during this study. Although three data points are typically necessary to establish a trend, there were only two baseline data points collected for James. The number was limited to minimize exposure to the pills. However, the attempt to limit exposure was unsuccessful for the other two participants. Before viewing the videos, there was a discrepancy in deciding how to score Paul's fourth baseline assessment. This led to another assessment, which increased his exposure before clarifying his score on the prior assessment. For Iris, the intervention would have been applied sooner, however there had not yet been an effect in Paul's score to warrant intervention for Iris. She also scored a 1 during her fourth assessment. Therefore, the assessments had to be extended out to wait for the data to stabilize.

Although the researcher was hiding during the assessment sessions, it is possible that the participants saw the researcher or the placing of the pill container during some of the assessments. However, the researcher was a supervisor at the clinic who was frequently present on days other than observation days. Therefore, her presence likely did not have influence on the participants' behavior.

Third, most assessments took place in the same four rooms that were designated for specific activities. For example, the computer room was always used to do an online reading program called Head Sprout. Therefore, the instructions were always the same and may have served as a discriminative stimulus to engage in the poison safety skills. Inconsistent attendance and schedule conflicts also made it difficult to collect data throughout the study.

Another limitation was the positioning of the camera. It was difficult to place the camera in a way that the children would not see it and allow for a full view of the room. Therefore, some responses were not clearly visible through viewing the recordings. During his first post-training assessment, Paul was instructed to go into the music room to play with the keyboard,

where the pill container was located. Once he entered the room, he flopped to the floor near the entrance and expressed he did not want to play the keyboard. Refusal to participate lead the researcher to end the assessment. Noncompliance may have occurred because other more reinforcing activities were in the room. It is unclear whether he saw the pills because he did not get close enough to be captured on camera. Paul received a score of 1 because he did not leave the room and tell an adult, even though it was not confirmed that he saw the pills. A booster session took place the following day and his score increased to 3.

One of the participants was also familiar with the camera prior to the study and would attempt to play with it if she saw it in a room. This caused the PI to refrain from recording some of her assessment sessions to minimize distraction. Instead, the PI positioned herself outside the room in such a way that she could see the participant and the pills but could not be seen by the participant. The PI also positioned herself in such a way that she could not be seen but could observe (hear) whether the participant reported the pills to the staff member.

Future research should train children to identify different types of harmful substances (i.e., chemicals and cleaning agents) to promote generalization. It would also be of interest to teach children to report the poisonous substance to any adult in proximity instead of the therapist alone. Although the participants mastered the skills at the school, it is unknown whether the skills would generalize to a novel setting. Perhaps future applications could conduct additional follow-up probes and in-situ assessments across a wider range of settings that children typically encounter.

It should be noted that although two of the three participants touched the pill container, none of them attempted to open the container to remove, touch or ingest the pills. It could be possible that children had a history with medication or had seen it before in some capacity.

Therefore, it may be beneficial to assess whether familiarity with a potentially harmful substance plays a role in learning safety skills. In this study, the pills were placed in containers which is not always the case in the natural environment. Caregivers may inadvertently leave single pills out on counters or other areas. Future research may also want to explore the role of the presentation of the pill on a child's in regards to poison prevention skills training.

Another recommendation for future researchers would be to compare least-to-most prompting to other methods embedded in BST. This would help determine if one approach led to more rapid acquisition. Finally, more research is recommended to examine the use of modified BST to teach children of different age groups and of varying ages and abilities.

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Appendices

Appendix A: Research Assistant Protocol

	Steps	Completed
<p>If the child does not touch the pills, leaves the room within 30 s , and <u>reports</u> the presence of a pill container:</p>	1. Praise child for letting you know. “Thanks for letting me know about the pills. I will make sure to check this out.”	
	2. Do not remove or throw the pills away in front the child.	
	3. Record response on data sheet.	
	4. If another adult was present when child reported the pills, make sure he/she also fills out an IOA data sheet.	
<p>If the <u>child does not report</u> the coming into contact with the pill container (within 30 seconds):</p>	1. Record response on data sheet.	
	2. Ask the child to come to another room	
	3. Do not remove or throw the pills away in front the child.	

Appendix B: Participant Response Trials

Participant: _____

Study Phase: MBST/Booster/MIST

Instructions: For each trial, please record the prompt level that was required for each response by circling the corresponding letter. I= independent; M=Modeling; V=verbal; P= Partial; F= Full
 Mastery Criterion: 100% correct independent responding twice for the three different scenarios.

Trial >	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Did not touch pill.	I	I	I	I	I	I	I	I	I	I	I	I	I
	V	V	V	V	V	V	V	V	V	V	V	V	V
	M	M	M	M	M	M	M	M	M	M	M	M	M
	P	P	P	P	P	P	P	P	P	P	P	P	P
	F	F	F	F	F	F	F	F	F	F	F	F	F
2. Left the room.	I	I	I	I	I	I	I	I	I	I	I	I	I
	V	V	V	V	V	V	V	V	V	V	V	V	V
	M	M	M	M	M	M	M	M	M	M	M	M	M
	P	P	P	P	P	P	P	P	P	P	P	P	P
	F	F	F	F	F	F	F	F	F	F	F	F	F
3. Told an adult.	I	I	I	I	I	I	I	I	I	I	I	I	I
	V	V	V	V	V	V	V	V	V	V	V	V	V
	M	M	M	M	M	M	M	M	M	M	M	M	M
	P	P	P	P	P	P	P	P	P	P	P	P	P
	F	F	F	F	F	F	F	F	F	F	F	F	F

of I points:

of V points:

of M points:

of P points:

of F points:

Appendix C: IOA Data Sheet 1

Participant: _____

Study Phase: _____

Please check any of the behaviors that the participant engaged in during the assessment.

Date	Assessment Number	Observer	Attempted to open Container	Opened the Container	Touched the Pills	Removed the Pills	Put Pills in Mouth

Appendix D: IOA Data Sheet 2

Participant: _____

Study Phase: _____

Write down the participant’s report of the presence of the pill container. If the child correctly completed the step, circle Yes. If the child did not complete the step, circle No. If a second observer was not present during the child’s report of the pills cross out observer 2.

IOA Data Sheet							
Date	Assessment #	Touched pill container?		Left the room w/in 30 s?		Reported the pills?	
__/__/__		Observer 1: Yes	No	Yes	No	Yes	No
		Observer 2: Yes	No	Yes	No	Yes	No
__/__/__		Observer 1: Yes	No	Yes	No	Yes	No
		Observer 2: Yes	No	Yes	No	Yes	No
__/__/__		Observer 1: Yes	No	Yes	No	Yes	No
		Observer 2: Yes	No	Yes	No	Yes	No
__/__/__		Observer 1: Yes	No	Yes	No	Yes	No
		Observer 2: Yes	No	Yes	No	Yes	No
__/__/__		Observer 1: Yes	No	Yes	No	Yes	No
		Observer 2: Yes	No	Yes	No	Yes	No
__/__/__		Observer 1: Yes	No	Yes	No	Yes	No
		Observer 2: Yes	No	Yes	No	Yes	No
__/__/__		Observer 1: Yes	No	Yes	No	Yes	No
		Observer 2: Yes	No	Yes	No	Yes	No
__/__/__		Observer 1: Yes	No	Yes	No	Yes	No
		Observer 2: Yes	No	Yes	No	Yes	No
__/__/__		Observer 1: Yes	No	Yes	No	Yes	No
		Observer 2: Yes	No	Yes	No	Yes	No
		Number of Agreements:		×100 =			
		Number of Agreements + Disagreements:					

Appendix E: Treatment Integrity

Observer: _____ Person Observed: _____

Date: _____ Setting: _____

Please mark ✓ if a step is completed correctly when conducting BST. If a step is completed incorrectly, mark ✗ next to that step. If a step is not necessary (i.e., the child did not need corrective feedback or multiple rehearsals), write N/A next to that step. Once all steps are completed, divide the number of yes scores by the total number of steps scored then multiply by 100. Make sure to fill out a separate sheet for each novel setting the trainer conducts training on.

Treatment Integrity Checklist for BST		
Task	Step Completed?	Comments
1. Therapist says “when you find pills, do not touch” as the therapist pretends to find or stumble upon the pill container and dramatically steps away from the container.		
2. The therapist provides the instruction to leave the room and tell an adult while having the child follow the researcher to observe the completion of these steps.		
3. Repeat steps 1 and 2 three times for the participant to view the appropriate steps.		
4. Allows child to practice correct behaviors while prompting using the prompt hierarchy.		
5. Provides descriptive praise for steps completed correctly.		

6. If steps are not completed correctly or within 5 s, provide physical prompts (as needed).		
7. Repeats steps 1-5 until child engages in correct behaviors without any help two times in a row.		

Appendix F: Social Validity & Side Effects Questionnaire

Parent Name: _____ Date: _____

Please answer the following questions, by indicating which statement best reflects your response.

Item	Response				
1. What changes have you seen regarding your client being cautious around medication?	A lot less cautious	Less cautious	No change	A little cautious	Very cautious
2. To what extent has your client experienced being upset following the intervention?	A lot less upset	Less upset	No change	A little upset	Very upset
3. Please describe any other changes you have seen in your client.					
4. How pleased are you with your client's participation?	Not at all Pleased	Not Pleased	Neutral	Pleased	Very Pleased
5. How acceptable do you think this would be as a training method for families, schools and community centers?	Not at all acceptable	Not Acceptable	Neutral	Acceptable	Very Acceptable

Appendix G: IRB Approval Letter



RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX(813)974-7091

October 11, 2018

Paula Petit-Frere
ABA-Applied Behavior Analysis
Tampa, FL 33612

RE: Expedited Approval for Initial Review

IRB#: Pro00036395

Title: An Evaluation of a Modified Behavioral Skills Training Procedure for Teaching Poison Prevention Skills to Children with Developmental Disabilities

Study Approval Period: 10/10/2018 to 10/10/2019

Dear Ms. Petit-Frere:

On 10/10/2018, the Institutional Review Board (IRB) reviewed and **APPROVED** the above application and all documents contained within, including those outlined below.

Approved Item(s):

Protocol Document(s):

[Protocol, Version #1, 09.07.18.docx](#)

Consent/Assent Document(s)*:

[Parental Perm. with HIPPA, V#1, 09.10.18.docx.pdf](#)

[Therapist.V#1.09.12.18.docx.pdf](#)

[Verbal Assent Script.docx](#)

*Please use only the official IRB stamped informed consent/assent document(s) found under the "Attachments" tab. Please note, these consent/assent documents are valid until the consent document is amended and approved. Verbal Assent forms are not stamped.

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review research through the expedited review procedure authorized by 45CFR46.110. The research

proposed in this study is categorized under the following expedited review category:

(6) Collection of data from voice, video, digital, or image recordings made for research purposes.

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

This research involving children as participants was approved under 45 CFR 46.404: Research not involving greater than minimal risk to children is presented.

Requirements for Assent and/or Permission by Parents or Guardians: 45 CFR 46.408:
Permission of one parent is sufficient.

Assent will be obtained as outlined in the IRB application.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval via an amendment. Additionally, all unanticipated problems must be reported to the USF IRB within five (5) business days.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,



Kristen Salomon, Ph.D., Chairperson
USF Institutional Review Board