

2011

## Evaluating the Effectiveness of a Teaching Package Utilizing Behavioral Skills Training and In Situ Training to Teach Gun Safety Skills in a Preschool Classroom

Laura Ann Hanratty  
*University of South Florida*, lahanratty@gmail.com

Follow this and additional works at: <https://digitalcommons.usf.edu/etd>



Part of the [American Studies Commons](#), and the [Social and Behavioral Sciences Commons](#)

---

### Scholar Commons Citation

Hanratty, Laura Ann, "Evaluating the Effectiveness of a Teaching Package Utilizing Behavioral Skills Training and In Situ Training to Teach Gun Safety Skills in a Preschool Classroom" (2011). *USF Tampa Graduate Theses and Dissertations*.

<https://digitalcommons.usf.edu/etd/3142>

This Thesis is brought to you for free and open access by the USF Graduate Theses and Dissertations at Digital Commons @ University of South Florida. It has been accepted for inclusion in USF Tampa Graduate Theses and Dissertations by an authorized administrator of Digital Commons @ University of South Florida. For more information, please contact [digitalcommons@usf.edu](mailto:digitalcommons@usf.edu).

Evaluating the Effectiveness of a Teaching Package Utilizing Behavioral Skills  
Training and In Situ Training to Teach Gun Safety Skills in a Preschool Classroom

by

Laura Ann Hanratty

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Arts  
Department of Child and Family Studies  
College of Behavioral and Community Sciences  
University of South Florida

Major Professor: Raymond Miltenberger, Ph.D.  
Timothy Weil, Ph.D.  
Kimberly Crosland, Ph.D.

Date of Approval:  
March 24, 2011

Keywords: active learning approaches, teacher implementation, contingent activity,  
time out from reinforcement, firearm safety skills

© 2011, Laura Ann Hanratty

## Dedication

It is an honor for me to thank those that have made the completion of this thesis as well as the journey through graduate school. It is my pleasure to thank my major advisor Ray for his continued support and pushing me to my fullest potential in this project. Thank you for helping me take a small idea to this finished product, something I can be proud of. I would also like to make a special acknowledgement to my committee member Tim for the continuous discussions about behavior analysis and always pushing me to “know how” and “know about.” I owe many thanks to my professors for my undergraduate career and helping me find behavior analysis. Thank you Greg, Amanda, Dennis and Ava for the continued support and leading me to a path that I love.

Thank you to my family for their continued support from the beginning of grad school to graduation day, Mom and Dad you have been great this whole time and you have been a major influence in my drive to succeed. Thank you John for your continued support, from attending my thesis proposal to supporting my journey, even if it included a move to Florida and many stressed phone calls. Without your love this would have been a much lonelier journey. And last but certainly not least thank you to my fellow cohort members, and my friends that have continued to support this process. Samantha and Ashley you have been there for the whole process and even to collect IOA. Thank you to everyone.

## Table of Contents

List of Figures	ii
Abstract	iii
Chapter 1: Introduction	1
Chapter 2: Methods	11
Participants and Setting	11
Materials	12
Target Behaviors and Assessments	13
Interobserver Agreement	14
Procedure	14
Baseline	14
Behavioral skills training	15
In situ training	16
In situ training with contingent activity	17
In situ training with contingent activity and time out	17
Follow up	18
Treatment Fidelity	19
Chapter 3: Results	20
Chapter 4: Discussion	23
References	30
Appendices	34
Appendix A: Teacher's Manual to Teach Safety Skills	35
Appendix B: Role Play Cards	40
Appendix C: Teacher Oral Proficiency Check	43
Appendix D: Treatment Fidelity Data Sheet	44

## List of Figures

*Figure 1:* Safety skill scores for all participants are shown for each day of observation. 22

## **Abstract**

There are a number of different safety threats that children face in their lives. One infrequent, but highly dangerous situation a child can face is finding a firearm. Hundreds of children are injured or killed by firearms each year. Fortunately, behavioral skills training (BST) and in situ training (IST) are effective approaches for teaching a number of different skills, including safety skills. The purpose of this study was to evaluate a teaching package for preschool teachers to learn to conduct BST to teach safety skills. A multiple baseline across subjects design was used to evaluate the effectiveness of this teaching package implemented by the teacher with seven preschoolers. Five children demonstrated the skills following in situ training and additional reinforcement or time out. Two children did not complete the study.

## **Chapter 1:**

### **Introduction**

Child safety should be a concern of all parents. Parents who are concerned with their children's safety often focus on safety skills, such as wearing a safety belt or using a car seat to promote car safety, storing hazardous materials out of reach of children to prevent poisoning, and teaching their children outdoor safety skills such as pedestrian skills to prevent accidents in roadways, and abduction safety skills to prevent their child from being abducted by strangers. Some parents do not immediately think of injury from playing with firearms as a major threat because it appears to occur infrequently. Unfortunately, hundreds of children are injured or killed each year by firearms when they find firearms in the home and play with them (Eber, Annest, Mercy, & Ryan, 2004). Because of the injuries and deaths that result from playing with found firearms, behavior analysts have stepped in to find an effective approach to teach children the safety skills that could save children's lives (Himle & Miltenberger, 2004).

One of the reasons that parents do not often think about the risk of firearm injury is that they may not believe their children are likely to find firearms. In a survey, 34% of children reported that they live in a home with a gun. This represents more than 22 million children in 11 million homes (Schuster, Franke, Bastian, Sor, & Halfon, 2000). Among the homes with firearms, 40% had at least one unlocked firearm, and 13% of the homes stored their unlocked firearm either loaded or with ammunition (Schuster et al.,

2000). With the accessibility to guns being so high, it is interesting to note that 72% of parents reported that they thought their child was not likely to handle a gun without their permission (“Common Sense”). Studies have found that 70% of Americans reported that they felt more had to be done to educate parents about the proper storage of guns to keep their children safe, and 80% of Americans reported that more should be done to limit the access that children have to guns (“Common Sense”).

In many cases parents who own guns and parents who do not own guns differ in their beliefs about guns. Parents who do not own guns believe that the safest way to avoid accidental shootings with guns is to not keep guns in the house (Farah & Simon, 1999). In cases where parents were gun owners, they reported that the best way to prevent accidental shootings with guns is education (Knight-Bohnhoff & Harris, 1998). Another differing opinion with these parents is the age at which children should be trusted with a gun. Most parents who did not own guns reported that they would rarely trust a child with a gun, and the number increased, as the ages were younger. Parents who owned guns were more likely to voice that they would trust children with guns, even at early ages (Webster, Wilson, Duggan, & Pakula, 1992).

With all of these risk factors present, hundreds of children in the United States are injured or killed by guns each year (Eber et al., 2004). From 1993 through 2000 roughly 22, 661 children under the age of 14 were treated in the emergency room due to nonfatal firearm injuries. During the same time period 5,542 children were killed from firearm related incidents (Eber et al., 2004). In most cases nonfatal firearm injuries occurred when the child was handling a firearm, and most injuries were to the lower extremities, however 1 in 5 gunshot wounds were in the neck and head area (Eber et al., 2004). It was



also found that 4 out of 5 children who suffered a nonfatal firearm injury were shot by themselves or someone that they knew (Eber et al., 2004)

With such high accessibility to guns and the resulting instances of injuries and deaths with a firearm, there is no question that there needs to be an effective wide spread approach to teaching children gun safety skills. Teaching children to leave the area when they find a gun and report it to adults could limit accidents with firearms.

Researchers have evaluated passive and active learning approaches to teaching safety skills to children. A passive learning approach (also called an information based program) is an approach in which children are provided with information about safety threats and safety skills, but do not have a chance to practice the skills. An active learning approach is one in which children are not only told about the skills, but are also given the chance to practice these skills in role plays and in situ assessments (Himle, Miltenberger, Gatheridge & Flessner, 2004).

Previously, information based programs were used to teach children to stay away from guns and not play with firearms if they are found. These approaches included passive learning techniques in which teachers and parents talked to children about what to do when they find a gun, and why guns can be dangerous, but did not have the children practice the skills with reinforcement. This approach, consisting of an information session with a police officer about guns including a discussion, time to ask questions, and supplemental teaching aides such as coloring pages, was shown to be ineffective in an early study in which children were assessed as they were left alone in a room with a disabled firearm, and videotaped to see their behavior. This research found that children

who attended the information session were just as likely as those who did not to play with a firearm (Hardy, Armstrong, Martin, & Strawn, 1996)

In an evaluation of another informational-based curriculum, a posttest only design was used to evaluate the difference in behavior between children who received the informational approach and a control group that did not have any intervention. The results showed that children were equally as likely to play with the gun, regardless of what group they were in (Hardy, 2002). Another program that is similar to the informational approach described previously is the Eddie Eagle GunSafe Program, a campaign designed by the National Rifle Association. The program is widely used with children and includes an informational approach with supplemental teaching aides such as coloring pages, posters, and a video to inform kids about safety skills. In research by Himle, Miltenberger, Gatheridge, et al. (2004) the Eddie Eagle program was compared to other active learning approaches. These studies found that children receiving the Eddie Eagle training did not engage in the safety skills when a gun was found, or during role plays; however, they were able to correctly describe the safety skills (Gatheridge et al., 2004; Himle, Miltenberger, Gatheridge, et al., 2004).

Behavioral skills training (BST) is an approach to teaching that has proven to be effective with many different skills. Previously BST has been used to teach abduction prevention skills (Johnson et al., 2005; Johnson, et al., 2006), poison recognition skills (Dancho, Thompson, Rhoades, 2008), pedestrian safety skills (Sidman, et al., 2005; Yeaton & Bailey, 1978), sexual abuse prevention skills (Lumley, Miltenberger, Long, Rapp, & Roberts, 1998; Miltenberger, et al., 1999), and firearm safety skills (Himle, Miltenberger, Flessner & Gatheridge, 2004; Himle, Miltenberger, Gatheridge, et al.,

2004, Himle & Miltenberger, 2004). BST utilizes delivery of instruction, modeling, role-plays, specific feedback from instructors and, in many instances, includes in situ assessment and training. Behavioral skills training is an active learning approach because children are given the chance to practice what they would do in a situation utilizing role-plays (Himle & Miltenberger, 2004). In each of these studies, safety skills were assessed using in situ assessments.

In situ assessment involves the placing a realistic firearm, either disabled or fake, in a child's natural setting, and evaluating the child's use of the skills upon finding the gun. During an in situ assessment, the child does not know that an assessment is taking place. In most cases, to assess gun safety skills, a video camera is placed in the environment to see the child's behavior when the child is alone with the gun. This setting allows for a naturalistic assessment of these skills. When a child completes these skills correctly it will result in a report to the adult and the opportunity to receive praise for the use of the skills. In some cases children do not complete the skills correctly. In this case, researchers are able to quickly intervene and give the child feedback on correct and incorrect responses; this is known as in situ training. In situ training is similar in fashion to the rehearsal that children experienced in the role play sessions, but it occurs immediately in the natural environment after the child failed to use the skills (Himle, Miltenberger, Flessner, et al., 2004; Miltenberger et al., 2004).

There have been a number of important findings in the research on BST. Early research focused on comparing BST to the popular Eddie Eagle approach. In this research 4-5 year old children were evaluated to determine if they would engage in the safety skills following BST, Eddie Eagle training, or no training. The results of this study found

that behavioral skills training as well as the Eddie Eagle program were effective in teaching children to verbalize the correct responses. BST also effectively taught children to show the correct responses during supervised role-plays whereas the Eddie Eagle program did not. However, children in both training groups failed to generalize the skills outside the training session during in situ assessments (Himle, Miltenberger, Gatheridge et al., 2004). This research was important because it demonstrated that even active learning techniques could fail to generalize, even though they were more effective than information based approaches for skills acquisition. These findings demonstrated that there had to be further investigation into moving these skills out of a training session and into the natural environment.

Based on the findings of the above-described research, another study was conducted to assess generalization of these skills. A multiple baseline design across subjects was utilized to evaluate the effectiveness of behavioral skills training. In this study researchers taught 4 and 5 year old children the safety skills using BST, and found that only some of the children were able to correctly demonstrate the skills in the natural environment. Those that were not able to demonstrate the skills participated in in situ training. The research found that after the supplemental training all children were able to demonstrate the safety skills (Himle, Miltenberger, Flessner, et al., 2004). This research demonstrated that children may require a different number of sessions to acquire the skills. This is an important factor in the individualizing of treatment.

In situ training was identified to be an integral part of behavioral skills training after skills were not generalized to natural environments. In another multiple baseline across subjects design, 4 and 5-year-old children participated in a behavioral skills

training program to teach gun safety skills. Children participated in in situ assessment and training following the behavioral skills training. This study found that all children acquired and maintained the skills, and were still performing the skills at 3-month follow-ups (Miltenberger et al., 2005).

In addition to younger children, BST has been shown to be effective with older children. In another study, BST was compared to the Eddie Eagle program. This study evaluated the difference in skills in a post-test only design with a group that received BST, a group that received Eddie Eagle training, and a control group. This research was done in a similar fashion as the previously discussed study (Himle, Miltenberger, Gatheridge, et al., 2004). The results of this study showed that children who went through BST were more likely than those that went through Eddie Eagle training to display the correct responses in a role-play assessment. Both groups were able to verbalize the correct responses to finding a firearm. In addition, in situ training was effective in teaching both groups of children the desired skills (Gatheridge et al., 2004). Another study evaluated the effectiveness of behavioral skills training in teaching 6 to 7 year olds safety skills using a multiple baseline design across subjects. This study found that about half of the children demonstrated the skills after behavioral skills training, but the other half required in situ training as well (Miltenberger, et al., 2004).

Further research has been done with older children as well. In a posttest only control group design 8 and 9 year old children were assigned to a control group, a behavior skills group, and an Eddie Eagle program group. The results yielded similar findings, as previously in that both treatment groups were able to verbalize the correct responses; however, in this study the children were equally able to demonstrate the skills

in a role-play regardless what intervention they received. There were no differences in the groups in in situ assessment, and the children varied in the number of in situ trainings they required to master the skills (Kelso, Miltenberger, Waters, Egemo-Helm & Bagne, 2007). It should be pointed out that the Eddie Eagle program for older children incorporates role-plays so children have an opportunity to practice the skills. This feature may explain why Eddie Eagle was as effective as BST for the older children in the Kelso et al. study

Research has shown that BST and IST can be effective to teach safety skills. However, these approaches are time intensive and require the presence of a trainer or graduate student with training in these procedures. This factor can be an impediment to wide scale use of the procedures. Often when a teacher or school district is considering teaching safety skills they will go for the easiest programs to implement. Frequently, informational approaches have been chosen because they can be implemented in large groups, and with minimal preparation for the trainer (Himle, Miltenberger, Gatheridge et al., 2004). One way to get BST more widely adopted may be to develop training materials that individuals (parents, teachers) can use to learn to teach safety skills to their children.

In one study a preliminary investigation was done to evaluate a training package for teaching parents to implement behavioral skills training and in situ assessment and training (Gross, Miltenberger, Knudson, Bosch, & Brower-Breitwieser, 2007). Parents were trained by reading an instructional manual and viewing a video to conduct BST for their children. The parents implemented the same BST programs for their children that have been demonstrated in the literature. A multiple baseline across subjects design was

used to evaluate the effectiveness of parents as trainers. The results showed that parents were able to effectively teach their children the correct skills, and the children were able to demonstrate the skills after training (Gross et al., 2007). This was a nice demonstration that trainers do not have to implement BST, but mediators can complete training and use all components effectively. This finding is important because it is a step into the direction of wider applications of behavioral skills training as the parents conducted training independently after studying training materials provided by the researchers. When training is done by researchers or other trainers it can still be timely and costly, and has less potential to be accessible to large numbers of children. It is, however, important to note that with parents as trainers, the BST can be done in the home. Training by parents in the home can help contribute to the generalization of the skills and could potentially reach more children. In another study peers were trained to implement behavioral skills training to other students (Jostad, Miltenberger, Kelso, & Knudson, 2008). Older children, ages 6 and 7, were asked to teach younger children, ages 4 and 5. A researcher used BST to teach the peers to conduct BST and IST. Once peers mastered the skills and were effectively trained in implementing BST, they were paired with the younger children. Using BST and IST, the older children successfully taught the younger children the skills. This study showed that the peers were able to implement the training and that both the peer conducting training and the child receiving training demonstrated the correct skills in an in situ assessment (Jostad & Miltenberger, 2004; Jostad et al., 2008). This finding demonstrates that there are ways to bring an intensive program to wider applications with the use of other students. Peer training requires less training by researchers, and even helps create social interactions with children. This approach can be

beneficial for all children involved, and would be a great addition to schools.

BST has been shown to be effective in teaching a number of safety skills. Often, a graduate student implements it with training in behavior analysis, which can be expensive and time consuming. It is beneficial to find an approach that can be implemented on a wider scale, and to a number of children. One such approach is to teach others such as parents or peers to conduct training. In just two studies, this approach has proven to be successful (Gross et al., 2007; Jostad et al., 2008) More research is needed to substantiate the effectiveness of this approach.

This study evaluated the effectiveness of a teaching program that used behavioral skills training implemented by a teacher in a preschool classroom to teach gun safety skills. The primary purpose of the study was to evaluate a teaching package that a teacher could use with limited training with the potential for wide spread application. Following the evaluation of the teaching package, which involved behavioral skills training implemented by the teacher in two training sessions, all children took part in in situ training followed by in situ training with contingent activity to increase their demonstration of these skills. For one child, in situ training with contingent activity and time out was implemented.



## **Chapter 2:**

### **Method**

#### **Participants and Setting**

Participants included 7 children (4 boys and 3 girls) who attended the same voluntary prekindergarten class for the morning. Two of the children (Oscar and Tara) did not complete all phases of the study but their data are included because they participated in a number of the intervention phases. All children were typically developing 4 year olds (there were no reported developmental delays). Many of the children attending the preschool received services for low-income families, including funding for voluntary prekindergarten. The preschool was in a low socioeconomic area in an urban setting.

The preschool had four classrooms, all of which had been organized to have centers associated with different activities. There was a dining area with three tables and chairs for students to eat meals and snacks in addition to a kitchen that was typically closed to students, which had a full range of appliances. There was also an area with two offices for staff and a waiting area for parents. Outside there were two separate playgrounds, each with various playground equipment including swings, slides, and jungle gyms.

The primary classroom where trainings took place had several centers around the room including a block center, a reading center, a pretend kitchen center, and a puppet

show center. There was also a reading area where children attended circle and story time. The classroom also had a bathroom in it. Assessments and in situ trainings took place in various areas based on availability. Assessments always took place in different areas from training.

## **Materials**

The teacher was given a teaching package that contained a training manual and role-play cards. The teaching manual (Appendix A) contained a task analysis for the components of BST and implementation of BST to a group of children for gun safety skills. A task analysis was given for delivering instructions, conducting discussions with the children, modeling the skills for children, conducting role plays with the role-play cards, and delivering corrective feedback. The teacher was allowed to read the manual for 2 days prior to the start of the training, and had access to the manual during the training sessions.

Role-play cards, describing scenes in which a child finds a gun, were given to the teacher to use with the children during training (Appendix B). Forty-six role-plays were created by the researcher on small index cards with different locations, guns, and scenarios that the teacher chose for the children to practice the skills.

Seven disabled firearms, which cannot be fired or loaded with bullets (that were provided by a police department), were also used by the teacher and researcher. These disabled firearms, ranging in size and type, were used during all behavioral skills training sessions, as well as, in situ assessments and in situ training sessions.

During in situ assessments, a video baby monitor was placed in the room along with the video camera. The video camera allowed real time recording of the child's

behavior, and the video baby monitor allowed immediate intervening by researchers during in situ trainings when necessary. Video recordings that were taken during assessments were used to record child safety scores as well as interobserver agreement.

### **Target Behaviors and Assessment**

The safety skills targeted during this intervention included (a) not touching the firearm, (b) leaving the immediate area of the firearm, and (c) telling an adult about the found firearm. Touching the firearm was defined as any behavior that the child engaged in that resulted in contact with the firearm with either a body part or an object used by the child (e.g. a toy, or pencil). Leaving the area where the gun was found was defined as the child vacating the area within 10 seconds of seeing the firearm. Reporting the firearm to the adult was defined as the child voluntarily telling an adult that he or she had seen the firearm. A child scored a 0 if he or she touched a gun; 1 if he or she didn't touch the gun but didn't leave the area or tell an adult; 2 if he or she didn't touch the gun and left the area but didn't tell an adult; and a 3 if he or she didn't touch the gun, left the area, and told an adult. If a child touched the firearm and then proceeded to leave the area and tell an adult, the assessment was scored as a 0 because the child engaged in the unsafe behavior before engaging in the other safety skills. During the study each child was taken out of the classroom to engage in an activity with the researcher at least once without finding a firearm and completing an assessment.

The assessments were conducted in various areas of the preschool with as much variation as possible. Areas were chosen for assessments based on availability. Prior to the start of an assessment the disabled firearm was placed in plain sight to ensure that the child saw it. A hidden video camera was also placed in the area in a location where the

child's behaviors could be recorded, including whether he or she saw the firearm during the assessment. The child was told that he or she was going to do some activities with a researcher, who was introduced as a volunteer. The experimenter told the child to go to the area and start the activity or play, while she went to get another item. No other children were present during the assessment, and the child was left in the room for 1 min. The child's behaviors were recorded on the safety rating scale. When assessments or demonstrations were not taking place, the gun was kept out of sight and safely in a bag.

### **Interobserver Agreement**

Interobserver agreement (IOA) was calculated for three target behaviors by dividing the number of agreements by the number of agreements plus disagreements multiplied by 100. The percentage agreement was 100%, conducted across 78% of sessions for all children. IOA was 100% for Aden across 68% of sessions, 100% for Kerry across 82% of sessions, 100% for Oscar across 73% of sessions, 100% for Tara across 90% of sessions, 100% for Fallon across 76% of sessions, 100% for Aileen across 94% of sessions, and 100% for Rory across 70% of sessions.

### **Procedure**

The effectiveness of a teaching package to teach safety skills to the preschool children was evaluated using a multiple baseline across subjects research design. The study took place over a 5 month period.

**Baseline.** During baseline each child participated in a minimum of three in situ assessments. Prior to the start of the assessment a disabled firearm was placed in an area that was in plain sight for the child, near stimuli for the activity. The child was asked to go into a room with the researcher, who was introduced as a volunteer, and complete an

activity. The researcher created an excuse to not go in the room, however, sent the child into the room with the disabled firearm alone (i.e. “I forgot the glue stick, you can go in and get started, I will be right back”). After 1 minute the researcher returned to the room and completed the activity with the child. After the assessments, no feedback or training was provided. After 1 minute the researcher went in the room, removed the firearm without drawing attention to the firearm and completed an activity for 10 minutes with the child.

**Behavioral skills training.** The researcher provided training materials before the teacher started the behavioral skills training. The teacher was offered time to go over the materials while the experimenter watched her classroom for her. The teacher declined this time and read over the materials after work. The teacher had the materials for 2 days. Before starting BST, the researcher and the teacher completed a proficiency check verbally (Appendix C). The teacher correctly answered all questions on the proficiency check scoring a 100%, and praise was delivered for correct responses.

After the teacher scored a 100% on the oral proficiency check, training was started with the first group of children that day. This training included one session of BST on two consecutive days with the teacher. During the first day of BST, the teacher discussed the dangers of touching a gun and provided instructions on what to do when a gun is found. After providing instructions the teacher brought out one of the disabled firearms and demonstrated the correct steps of not touching the gun, leaving the area, and reporting it to an adult. The children practiced refraining from touching the gun, leaving the area and then reporting the firearm to the teacher. The teacher delivered praise each time a correct response was displayed. In the event that the child engaged in an incorrect

response, the teacher delivered corrective feedback that included instructions on the correct response and practicing the correct response. The child practiced until he or she demonstrated the three step behavioral sequence.

The students then practiced the skills with the teacher using the role-play cards. During the role-plays the teacher picked a scenario and read the card out loud to the child. The teacher then set up the role-play with students, and had one child act out the skills of finding a gun. The teacher also included students to act as friends and parents in some situations so all children could actively be engaged. The teaching protocol called for each child to complete the role-plays correctly 2 times, and for the teacher to deliver specific praise and corrective feedback if needed.

The second day consisted of the teacher reviewing the skills followed by more role-plays. The teaching protocol called for each child to complete the role-plays correctly 4 times, and for the teacher to deliver specific praise and corrective feedback if needed. After both days of behavioral skills training, post-training assessments were conducted. The second group of children started training a month after the first group of children completed trainings.

**In situ training.** Following behavioral skills training with the teacher the researcher completed in situ trainings. All children took part in in situ training following a failure to perform the skills after behavioral skills training. These sessions started like a typical assessment; however, a researcher intervened after 1 minute if the child did not leave and report the firearm, or if the child was observed touching the disabled firearm. The researcher went into the room, pointed out the firearm, and reviewed the correct skills that should have been used. The researcher then had the child practice the skills

until the child demonstrated the skills correctly 3 consecutive times. After the child demonstrated the skills, praise was delivered and the researcher engaged in an activity with the child for 10 min. It is important to note that the child's score on the assessment was based on the first probe of the assessment, and training occurred following the assessment.

**In situ training with contingent activity.** All children took part in in situ training with contingent activity after failing to perform the skills after in situ training (group 1) or after BST (group 2). These sessions started like a typical assessment; however, a researcher intervened after 1 minute if the child did not leave and report the firearm, or if the child was observed touching the disabled firearm. The researcher went into the room, pointed out the firearm, and reviewed the correct skills that should have been used. The researcher then had the child practice the skills for 10 minutes instead of attending the class playtime. After the child demonstrated the skills the child was brought to the classroom with no access to the reinforcing leisure activity. If the child engaged in the skills correctly, the child was given the option to go outside and play, or complete the activity that the child was originally offered with the researcher. After the session the child was told that if she ever found something dangerous and told an adult she would be able to get a special activity (i.e. "If you ever find something dangerous and you stay away and tell an adult, the adult will take you to do a special activity; if not, you will have to practice more"). The child was then brought back to the classroom.

**In situ training with contingent activity and time out.** One child (Rory) took part in in situ training with time out after a failure to perform the skills after in situ training with contingent activity. It was hypothesized that the extra training time during

in situ training may have been a preferred activity because of the access to the researcher's attention. These sessions started like a typical assessment; however, a researcher intervened after 1 minute if the child did not leave and report the firearm, or if the child was observed touching the disabled firearm. The researcher went into the room, pointed out the firearm, and reviewed the correct skills that should have been used. The child was then prompted to sit in a chair for 2 minutes while the researcher did paperwork. After the 2 minutes, training was continued and the researcher had the child practice the skills until the child demonstrated the skills correctly 5 consecutive times. After the child demonstrated the skills the child was brought to the classroom. If the child engaged in the skills correctly the child was given the option to go outside and play, or complete the activity that the child was originally offered with the researcher. After the session the child was told that if he ever found something dangerous and told an adult he would be able to get a special activity (i.e. "If you ever find something dangerous and you stay away and tell an adult, the adult will take you to do a special activity; if not, you will have to practice more"). The child was then brought back to the classroom.

**Follow up.** Each child that completed the study took part in follow up assessments 2.5 weeks following his or her last assessment. Follow up assessments were the same as those in in situ training with contingent activity. Prior to the start of the assessment a disabled firearm was placed in an area that was in plain sight for the child, near stimuli for the activity. The child was asked to go into a room with the researcher and complete an activity. The researcher created an excuse to not go in the room, but sent the child into the room with the disabled firearm alone (i.e. "I forgot the glue stick, you can go in and get started, I will be right back"). Once the child engaged in the safety



skills and the child reported the firearm to the researcher, the child was offered the chance to complete the activity, or go outside with the researcher.

### **Treatment fidelity**

Teaching sessions conducted by the teacher were video recorded and researchers recorded from video whether the teacher carried out each of the steps listed in the teaching manual. The correct use of BST was recorded on the treatment fidelity data sheet (Appendix D). During the verbal proficiency test the teacher scored a 100% on the verbal report, which included providing examples of the behaviors the teacher should engage in. Following the BST sessions, treatment fidelity was scored and the teacher implemented 71% of the steps correctly. The teacher failed to have each child participate in role plays the specified number of times, and failed to deliver specific corrective feedback on all occasions.

### **Chapter 3:**

#### **Results**

Results showed that in baseline, none of the children engaged in the safety skills. All children received a score of 0 (touched the gun) or 1 (did not touch the gun but did not get away or tell). Furthermore, in assessments in which the children touched the gun they touched the area around the trigger in 67% of assessments, pointed it at themselves in 21% of assessments, pointed it as if to shoot at an object in the room in 33% of assessments, or pointed it at a person who happened to walk into the room during 13% of assessment. These findings suggest that these children would have been at great risk of shooting themselves or someone else upon finding a gun.

Following baseline, scores did not improve for any of the children with BST conducted by the teacher. In situ training, conducted with four of the participants following BST, did not result in the successful use of the safety skills for any of the participants. Aden and Kerry each scored a 3 (did not touch the gun, got away and told an adult) one time during in situ training, but there was no consistent increase in safety skills with in situ training. Six of the participants received in situ training plus motivation and this approach was effective with four out of six children (Aden, Kerry, Arianna and Fallon). Subsequently Oscar dropped out of the study and in situ training with time out was effective with the other child (Rory). The safety skills also maintained during the follow up assessments for all five of the participants who were available for follow up

(see Figure 1). Although the mean scores were variable, by the end of the final phase all children except one (Oscar) who finished the in situ training plus motivation or time out phase scored a 3 five consecutive times, and maintained the skills at 2.5-week follow-ups.

One subject (Oscar) did not fully benefit from the in situ training and motivation phase. He scored a 0 (touched the gun) in every assessment in baseline and BST phases. With in situ training and in situ training plus motivation, he scored a 1 in every assessment (did not touch the gun). Thus, Oscar did not demonstrate the safety skills following training, although he did refrain from touching the gun. Unfortunately Oscar was not available to participate in an evaluation of any further procedures.

There was a break of 3 weeks in between days 24 and 25 of the study due to child vacations and winter holidays. It is important to note that there was no deterioration in the use of the skills, and the scores are the same before and after the break. Days of observation included any day where there was an opportunity to collect data. The study took 5 months to complete.

Following training, the teacher's implementation of behavioral skills training was scored from video. The teacher correctly implemented ten out of fourteen components of the training correctly (71% correct). The teacher failed to correctly have each child role play the specified number of times, and did not deliver specific corrective feedback (in some instances the teacher did not correctly tell the child what behaviors were correct, rather, she only pointed out what was done wrong or missing).

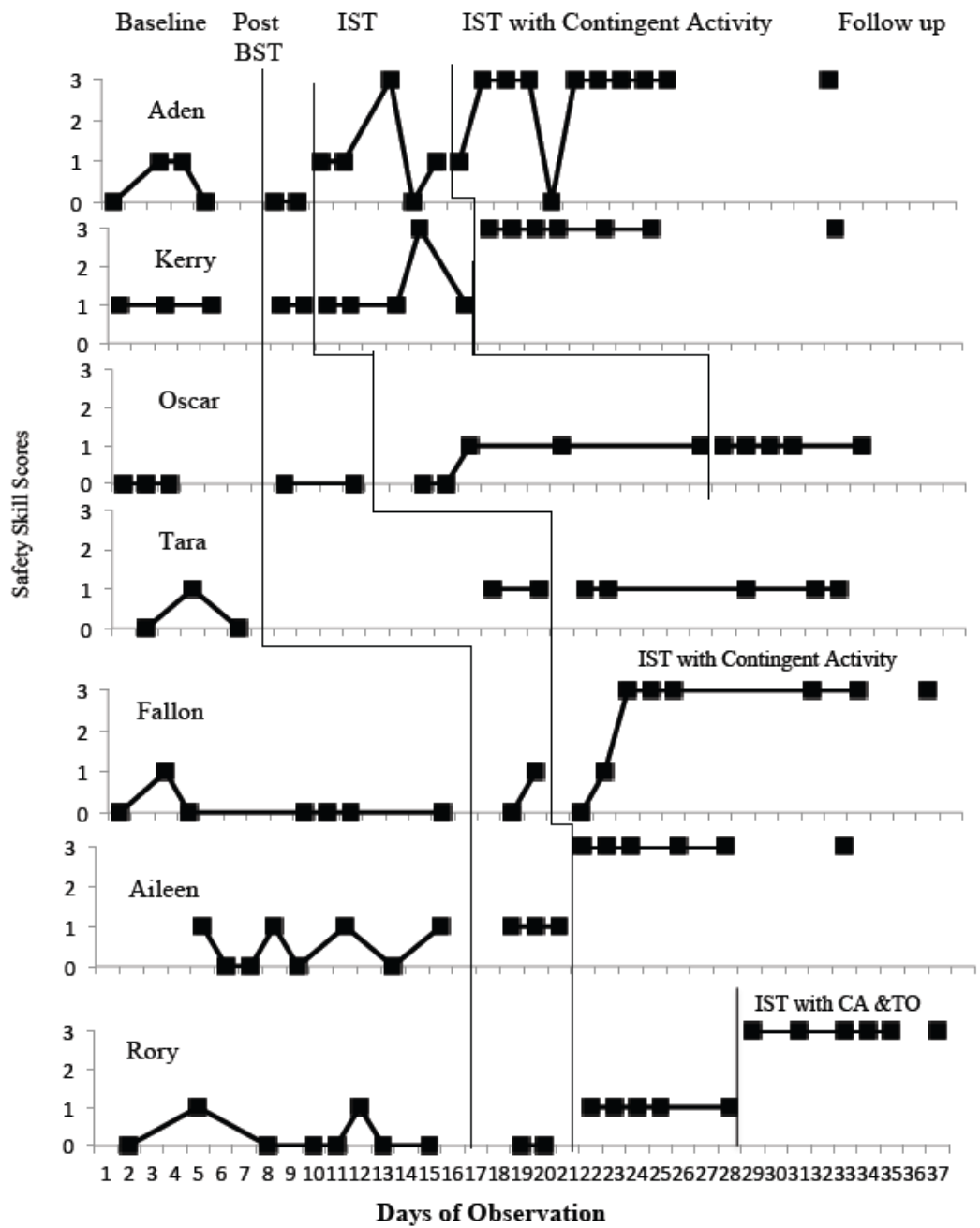


Figure 1 Safety skill scores for all participants are shown for each day of observation. Results show that following behavioral skills training with a teacher and in situ training the children did not demonstrate the safety skills. In situ training with contingent activity was successful in teaching 4 children the skills and in situ training with contingent activity and time out was effective for teaching the remaining child the safety skills

## **Chapter 4:**

### **Discussion**

The results of this study showed that behavioral skills training as implemented by the teacher was not effective alone in teaching safety skills to young children. Additionally, although it has been shown to be effective across many studies (Himle, Miltenberger, Flessner, et al., 2004; Johnson et al., 2005; 2006; Miltenberger et al., 2004; 2005), additional in situ training was not effective in teaching the safety skills. However, four out of six children demonstrated the skills after in situ training with an enhanced motivation component, and the other child demonstrated the skills after in situ training with time out. Thus, it appears that the motivational effects of in situ training were not sufficient for the participants in this study. It has been hypothesized that in situ training has an aversive component (i.e. being caught engaging in the incorrect behavior by a researcher or parent is aversive) and thus punishes the incorrect use of safety skills and sets up negative reinforcement for the correct use of the safety skills in the next assessment. However, in this study being caught did not appear to be aversive for the children as indicated by the fact that they continued to engage in the incorrect behavior in subsequent assessments. Therefore, in situ training had to be enhanced with positive and negative reinforcement (access to preferred activities and escape from further training) and in one case with negative punishment (time out for Rory)

It is interesting to note that Aden and Kerry, both demonstrated the safety skills one time during in situ training; however, the skills did not maintain. The failure of in situ training to produce consistent effects could be due to the fact that praise was not acting as a strong enough reinforcer, and that getting caught not using the safety skills did not function as an aversive event. Furthermore, during the in situ training phase, the session always ended with a reinforcing activity; this access to the activity may have competed with the effects of praise provided contingent on the use of the safety skills. In the in situ training with contingent activity condition, there was no access to the reinforcing activity if the child failed to exhibit the safety skills. Rather, contingent on the use of safety skills, the child was given praise and the choice to go outside or do a reinforcing activity. It is hypothesized that access to the activity served as a reinforcer for completing the safety skills, and the loss of playtime served as a punisher for engaging in incorrect behaviors during the assessment. During in situ training with contingent activity, Kerry completed the skills in every assessment and the skills maintained during follow up. Aden was largely successful with in situ training and motivation, ending the phase with five consecutive scores of 3 and using the skills during follow-up. In this phase, when he received a score of less than 3, it was because he did not leave the area in the 10 sec window to tell an adult (session 17) and because he touched the gun to move it away from the table before he ran away and told an adult (session 20). Thus, he received a score of 1 for waiting too long to run away and a 0 for touching the gun even though he executed the safety skills immediately after.

In the second training group, Fallon, Aileen, and Rory all failed to use the skills after behavioral skills training. Because in situ training was ineffective for the first group,

these participants skipped in situ training and went into the in situ training plus motivation phase after the BST phase. Aileen completed the skills in every assessment in this phase and Fallon demonstrated the skills correctly five consecutive times and maintained the skills during follow up after failing in the first two assessments. In the first assessment he attempted to put the gun away for the adult (and received a 0), and the second assessment he waited in the room for a researcher to come in to report the gun (and thus received a 1).

Rory failed to use the skills during the in situ training and motivation condition. It was hypothesized that the extra rehearsal he engaged in was a preferred activity and possibly reinforcing Rory's incorrect behavior during assessments. During in situ training, Rory often yelled, ran around, and laughed seemingly to obtain attention, an observation corroborated by his teacher. Based on the hypothesis that Rory's failure to use the safety skills during assessments amounted to attention maintained noncompliance, it was decided to implement a short time out contingent on incorrect behavior during assessments. These changes lead to an immediate increase in the use of the safety skills.

In published research on teaching safety skills to young children, BST has been shown to be effective about half the time, with in situ training needed half the time (Himle, Miltenberger, Flessner et al., 2004; Miltenberger et al., 2004). One unanswered question in the current study is why BST did not work for these children. A possible reason may be the treatment fidelity of the implementation of the training. BST relies heavily on role-plays and feedback, but unfortunately these components were not implemented consistently for the children. The teacher scored 100% on the verbal

proficiency, but did not generalize the skills to the training of the children with great fidelity. Although lack of a high level of treatment fidelity could have been a factor in the failure of BST, it is unlikely that this was the only factor as in situ training also failed to increase the safety skills.

The failure of in situ training for all four children in this study was surprising, considering the wide spread effectiveness of in situ training in the literature (Himle, Miltenberger, Flessner, et al., 2004; Johnson et al., 2005; 2006; Miltenberger et al., 2004; 2005). There are several reasons why in situ training may not have been effective. One reason could be that the extra practice (and thus the attention from the researcher) the children received during in situ training may have served as a reinforcer for incorrect responding during assessments. In particular, it was hypothesized that for Rory the extra attention during one-on-one training may have served as a reinforcer, and the successful use of a time out component demonstrated that this might have been the case. Also, being caught finding a firearm by the researcher and being made to practice during in situ training may not have been an aversive event for the children. In previous research the act of being caught with a firearm and repeatedly practicing the skill likely functioned as an aversive event, and thus functioned as a punisher for the inappropriate behaviors (Miltenberger et al., 2004). Furthermore, engaging in the correct behavior in subsequent assessments was probably reinforced by avoiding further practice. It is possible that disapproval of the researcher and repeated practice during in situ training was not a powerful aversive event for the children. In situ training was completed with the researcher because it was hypothesized that in an applied setting a teacher would not have the time nor training to complete in situ training with each child.



The preschool director and the teacher both reported that they worried about the children finding guns in their environments, and they both thought that the safety skills were important skills for the children to learn. Following the study the teacher as well as preschool director reported that they were surprised to see that the children all touched the firearm in baseline and following initial training, and they were pleased with the final results of the training.

It was an important finding that with in situ training and enhanced reinforcement the children learned the skills. The teacher had reported that she previously reprimanded the kids for playing with toy guns. This was not effective in teaching the children not to play with guns, as demonstrated by their baseline scores. With a more potent reinforcer the children demonstrated the skills. Prior to the study, the teacher and director of the preschool did not believe that the children would be able to correctly demonstrate the skills. It was beneficial for the teachers to see that the children could be taught these skills with a more active learning approach and potent reinforcement.

The second group did not go through in situ training alone following BST for two main reasons. One reason was to control for sequence effects. Going from the BST phase to in situ training with contingent activity demonstrated that the children did not need to have in situ training prior to in situ training with contingent activity for the skills to be effectively taught. Also, the second group did not take part in in situ training alone because it was ineffective for the first group and skipping that phase allowed for faster completion of a training approach that was effective in teaching the skills.

There are several limitations to the present study. One main limitation is that the failure to engage in the correct behaviors following behavioral skills training and in situ

training cannot be clearly explained; rather explanations can only be hypothesized as described above. Another limitation to this study is the treatment fidelity of behavioral skills training by the teacher. The aim of the study was to evaluate a self-contained training package that could be used to teach safety skills without any assistance from the researchers. Further research should evaluate revised teaching packages with more teachers, and evaluate other means to ensure higher treatment fidelity. The teaching package used by Gross et al. (2007) to teach parents to conduct BST and IST included a written manual and video modeling. Perhaps teachers would be more successful in teaching the skills if a similar video modeling component were included in their training materials. In this study it was decided not to use a video in the teaching package to create the most efficient package that would be widely accessible by many preschools.

Future research should evaluate teaching packages for widespread application in classrooms. Many parents rely on preschools and elementary schools to teach safety skills, and it has been shown that passive learning approaches are not effective means to teach these skills (Gatheridge et al., 2004; Himle, Miltenberger, Gatheridge et al., 2004). In the present study both preschool staff and a parent expressed that they would like similar programs for other safety skills such as abduction prevention skills. Based on the success of Gross et al. (2007), researchers should continue to develop and evaluate training packages for teachers until the most successful package is identified.

Future research should also evaluate the effects of positive and negative reinforcement and the need for punishment during in situ training. The present study suggested that behaviors might change as a result of positive reinforcement (extra time outside and activities) and negative reinforcement (escaping extra practice). The current

results also suggested that punishment (a time out procedure) was necessary for one participant. Further research should expand on the manipulation of these components to effectively teach children desired skills.

## References

- Common Sense About Kids and Guns. (n.d.). *Fact File*. Retrieved January 26, 2010, from <http://www.kidsandguns.org>.
- Dancho, K., Thompson, R., & Rhoades, M. (2008). Teaching preschool children to avoid poison hazards. *Journal of Applied Behavior Analysis, 41*(2), 267-271.
- Eber G.B, Annest J.L, Mercy J.A, & Ryan G.W. (2004). Nonfatal and fatal firearm-related injuries among children aged 14 years and younger: United States, 1993-2000. *Pediatrics, 113*(6):1686–1692.
- Farah, M. M., & Simon, H. K. (1999). Firearms in the home: parental perceptions. *Pediatrics, 104*, 1059-1063.
- Gatheridge, B. J., Miltenberger, R. G., Huneke, D. F., Satterlund, M. J., Mattern, A. R., Johnson, B. M., & Flessner, C. A. (2004). Comparison of two programs to teach firearm injury prevention skills to 6- and 7- year-old children. *Pediatrics, 114*, 294-299.
- Gross, A., Miltenberger, R., Knudson, P., Bosch, A., & Brower-Breitwieser, C. (2007). Preliminary evaluation of a parent training program to prevent gun play. *Journal of Applied Behavior Analysis, 40*, 691-695.
- Hardy, M. S. (2002). Teaching firearm safety to children: failure of a program. *Developmental and Behavioral Pediatrics, 23*, 71-76.
- Hardy, M. S., Armstrong, F. D., Martin, B. L., & Strawn, K. N. (1996). A firearm safety program for children: they just can't say no. *Developmental and Behavioral Pediatrics, 17*, 216-221.

- Himle, M., & Miltenberger, R. (2004). Preventing unintentional firearm injury in children: The need for behavioral skills training. *Education & Treatment of Children, 27*, 161-177.
- Himle, M. B., Miltenberger, R. G., Flessner, C., & Gatheridge, B. (2004). Teaching safety skills to children to prevent gun play. *Journal of Applied Behavior Analysis, 37*, 1-9.
- Himle, M., Miltenberger, R., Gatheridge, B., & Flessner, C. (2004). An evaluation of two procedures for training skills to prevent gun play in children. *Pediatrics, 113*, 70-77.
- Johnson, B. M., Miltenberger, R. G., Egemo-Helm, K., Jostad, C. J., Flessner, C., & Gatheridge, B. (2005). Evaluation of behavioral skills training for teaching abduction-prevention skills to young children. *Journal of Applied Behavior Analysis, 38*, 67-78.
- Johnson, B. M., Miltenberger, R. G., Knudson, P., Egemo-Helm, K., Kelso, P., Jostad, C., & Langley, L. (2006). A preliminary evaluation of two behavioral skills training procedures for teaching abduction prevention skills to school-age children. *Journal of Applied Behavior Analysis, 39*, 25-34.
- Jostad, C. M., & Miltenberger, R. G. (2004). Firearm injury prevention skills: Increasing the efficiency of training with peer tutoring. *Child & Family Behavior Therapy, 26*(3), 21-35.
- Jostad, C. M., Miltenberger, R. G., Kelso, P., & Knudson, P. (2008). Peer tutoring to prevent gun play: Acquisition, generalization, and maintenance of safety skills. *Journal of Applied Behavior Analysis, 41*, 117-123.

- Kelso, P., Miltenberger, R., Waters, M., Egemo-Helm, K., & Bagne, A. (2007). Teaching skills to second and third grade children to prevent gun play: A comparison of procedures. *Education & Treatment of Children, 30*(3), 29-48.
- Knight-Bohnhoff, K., & Harris, M. B. (1998). Parent's behaviors, knowledge, and beliefs related to unintentional firearm injuries among children and youth in the southwest. *Journal of Pediatric Healthcare, 12*, 139-146.
- Lumley, V. A., Miltenberger, R. G., Long, E. S., Rapp, J. T., & Roberts, J. A. (1998). Evaluation of a sexual abuse prevention program for adults with mental retardation. *Journal of Applied Behavior Analysis, 31*, 91-101.
- Miltenberger, R. G. (2008). Teaching safety skills to children: Prevention of firearm injury as an exemplar of best practice in assessment, training, and generalization of safety skills. *Behavior Analysis in Practice, 1*, 30-36.
- Miltenberger, R. G., Flessner, C., Gatheridge, B., Johnson, B., Satterlund, M., & Egemo, K. (2004). Evaluation of behavioral skills training procedures to prevent gun play in children. *Journal of Applied Behavior Analysis, 37*, 513-516.
- Miltenberger, R. G., Gatheridge, B. J., Satterlund, M., Egemo-Helm, K. R., Johnson, B. M., Jostad, C., Kelso, P., & Flessner, C. A. (2005). Teaching safety skills to prevent gun play: An evaluation of in situ training. *Journal of Applied Behavior Analysis, 38*, 395-398.
- Miltenberger, R., Gross, A., Knudson, P., Jostad, C., Bosch, A., & Brower Breitwieser, C. (2009). Evaluating behavioral skills training with and without simulated in situ training for teaching safety skills to children. *Education and Treatment of Children, 32*, 63-75.

- Miltenberger, R. G., Roberts, J. A., Ellingson, S., Galensky, T., Rapp, J. T., Long, E. S., & Lumley, V. A. (1999). Training and generalization of sexual abuse prevention skills for women with mental retardation. *Journal of Applied Behavior Analysis*, 32, 385-388.
- Schuster, M. A., Franke, T. M., Bastian, A. M. Sor, S., & Halfon, N. (2000). Firearm storage patterns in U.S. homes with children. *American Journal of Public Health* 90(4): 588-594.
- Sidman, E. A., Grossman, D. C., Koepsell, T. D., D'Ambrosio, L., Britt, J., Simpson, E. S., Rivara, F. P., & Bergman, A. B. (2005). Evaluation of a community-based handgun safe-storage campaign. *Pediatrics*, 115, e654-e661.
- Webster, D. W., Wilson, M. E. H., Duggan, A. K., & Pakula, L. C. (1992). Parents' beliefs about preventing gun injuries to children. *Pediatrics*, 89, 908-914.
- Yeaton, W. H., & Bailey, J. S. (1978). Teaching pedestrian safety skills to young children: An analysis and one-year followup. *Journal of Applied Behavior Analysis*, 11, 315-329.

## Appendices



Appendix A

Teacher's Manual to Teach Safety Skills

Stop! Get Away! Tell an Adult!

Teaching Gun Safety  
Skills to Your Students

Teaching Manual

By Laura A Hanratty

## Appendix A (Continued)

# Safety Skills Teaching Manual

Today you start teaching your students safety skills that they will need if they ever find a fire arm. This two day curriculum will help you teach your students that when they see a gun to not touch it, leave the area, and tell an adult immediately.

You will be using a technique called Behavioral Skills Training (BST) to teach your class. BST is a training method in which instructions, modeling, rehearsal, and feedback are used. Instructions are delivered to the students to tell them what they should do in case they find a gun. Modeling is when you, the teacher, demonstrate these skills for the students. Then your students will rehearse the skills and you will provide feedback on your student's performance. Feedback will include specific praise and further instruction for improvement if needed.

This manual will guide you through the two days of BST with your students.

## Day One

Today is the start of the curriculum. It is important to start the curriculum by establishing good communication with your students. Have all of the students get together in an area of the classroom. It would be helpful to be in a circle so you can see everyone and everyone can see you. Start off with a series of questions with your students. The following questions will help with the start of this process:

- Does everyone know what a gun looks like?
- Has anyone ever seen a gun?
- What should you do if you see a gun?
- Does anyone know what could happen if you play with a gun?

These questions should lead into the part of the discussion about the dangers of guns. This is the part where you will tell the children that guns can hurt, injure, or even kill people. Stress to the children that they should never think a gun doesn't have bullets. Always think a gun is dangerous.

### *Instructions*

Now that the children have had a chance to talk about the dangers of guns it is important to tell the children what they should do if they see a gun. Follow these steps to deliver instructions.

1. Tell the children that they should never touch a gun, even if they think it is unloaded, if they know who's it is, or if others have also touched it
2. Tell the children that when they see a gun they should run away from it right away. This is important because accidents can always happen if they stay near a firearm

### 3. Appendix A (Continued)

4. Tell the children that when they run away from the firearm they should go and tell a trusted adult right away. A trusted adult is your teacher if you are at school or your parent or babysitter if you are at home.
5. Repeat to the children that when they see a gun they should not touch it, get away from it, and tell an adult
6. Ask the children to shout the answer as a group
7. Praise children for correctly answering
8. Ask each individual child to answer what they should do when they see a gun
9. Use praise for each child's correct answer.

Here is an example of a way to deliver the instructions:

“Guns can be dangerous because you can kill or hurt people with guns or you could damage property. Adults do not always remember to put guns away in safe locations so that is why I am going to teach you what to do in case you ever find a gun.

I am going to tell you the things that you should do if you ever find a gun when you are not with an adult. The first thing is to STOP as soon as you see a gun. Do not go any closer to the gun. Next, you should NOT TOUCH then gun. Then, you need to GET AWAY from the gun as fast as you can. This means running out of the room. Last you need to TELL AN ADULT right away. You should tell the first adult that you see so that the adult can go put the gun away or take care of the problem. This can be a teacher or parents. So the four things to do if you ever see a gun are to stop, don't touch, get away and tell an adult.

Can you say those with me? (together) Stop, don't touch, get away, tell an adult.

Now you say them on your own. (child response)”

#### *Corrective feedback*

A big part of this curriculum will be to praise children for correct answers. Also, corrective feedback should be given for each answer if it is not correct or entirely correct. Corrective feedback includes specifically telling the child what they did correct, and then telling them what they should also do for a better answer. Also, it is important to ask the child again, until they can give the answer correctly. The same process would be used for asking a child to show you what they would do. An example is below:

A teacher asks Billy “what should you do if you see a gun.” Billy says “I won't touch it.” Billy did a great job with that part, so the teacher says “Great job telling me that you wouldn't touch the gun! But don't forget we also want to get away from it and tell an adult. Now Billy, what would you do if you see a firearm?” Billy answers “I won't touch it, leave right away, and tell an adult.” The teacher replies “Great job, Billy! That's right you don't touch it, get away from it, and tell an adult right away.”

## Appendix A (Continued)

After the instructions are delivered and each child has been able to correctly say the steps that should be done in the presence of a fire arm it is time to move to practice.

### *Modeling and Practice*

Practicing the safety skills is important to teach children to correctly demonstrate the skills. Before the children get to practice what to do it is the teacher's job to show the children what to do. Follow these steps to model these responses.

1. Place the disabled firearm on a chair.
2. Tell the children that this is a special gun from the police department, and it can no longer be used because the police made it safe
3. Set up a scenario with the students such as "Let's say I am at home, and this chair is the table in the living room, and you come home and see that your family left it on the table"
4. Tell the children that when you see the gun you are going to not touch it, while emphasizing your hands over your head
5. Tell the children you leave immediately, and move away from the gun quickly
6. And then tell the children that you will tell an adult, and tell one of the children to pretend to be an adult, and report it to them.
7. Repeat steps 3-5 two more times, picking a different child each time to be the "adult"

After you have shown the students the skills it will be their turn to practice. This is a fun and interactive time with the students, so have them stand up in a line. Each child will come up to the area around the chair with the gun, and practice the skills. It is crucial that the child do all the steps, and say them out loud. If they miss anything give corrective feedback, and try again. Once they get it correct they can go to the end of the line. Give them a sticker each time they do all the steps correctly. Once all the children have two stickers it is time to role play different scenarios.

### *Role Plays*

Now is the time to let those creative minds come out. A big part of your students' success in learning these skills is the ability to practice, practice, and practice! One way that the students will be able to practice is with many role play cards. These cards have different situations that the students may come across. Each child will get to pick 2 role play cards to practice with you in front of the group. Before the child begins to practice look at the card and read the scenario. Tell the child where the situation takes place, where the gun is. For example if the card says "You are in your kitchen and you see a gun on the shelf, what should you do?" you should tell the child "Ok, Susie. You are at home and you go in the kitchen to get a snack. Here is the shelf (gesture to what you will be pretending is the shelf with the gun) and you look on the shelf and you see a gun. What should you do" and watch the child practice these skills.

## Appendix A (Continued)

As the child practices you will deliver praise and corrective feedback (if needed). If the child does not perform the safety skills correctly deliver the corrective feedback, and then try again. Each time the child performs all the steps correctly they get praise and another sticker. Once each child has 2 stickers from role plays the time for the first day is done.

### Day 2

Now that the children can correctly demonstrate the skills it is time to practice, practice, practice. Day two should start off with a brief review of the skills. Remind the children that when they see a gun they should not touch it, leave immediately, and tell an adult. Then have the children recite the skills in the group all together.

After the brief review it is time for practice. This day each child will get to practice 4 role plays in front of the group. This will be done exactly like day one. Each child will practice the skill with the teacher in front of the group, and if they do not complete it correctly you will deliver corrective feedback, and have the child practice again. Once the child correctly demonstrates the skills they will get praise and a sticker. Each child will get a sticker once they complete the skills.

## Appendix B

### Role Play Cards

• • •

You are in your garage and you see a gun on the floor. What should you do?

• • •

• • •

You are in your family's study and you find a gun on in a drawer. What should you do?

• • •

• • •

You are at home and in the kitchen and you see a gun on a shelf. What should you do?

• • •

• • •

You are in your parent's bedroom and you see a gun on the dresser. What should you do?

• • •

• • •

You are in your parent's bedroom and you see a gun on a shelf. What should you do?

• • •

• • •

You are in your family's study and you see a gun on the shelf. What should you do?

• • •

• • •

You are in your family's study and you see a gun on the floor. What should you do?

• • •

• • •

You are at home and in the kitchen and you see a gun on the table. What should you do?

• • •

• • •

You are in your parent's bedroom and you see a gun under a dresser. What should you do?

• • •

• • •

You are in your parent's bedroom and you see a gun on the bed. What should you do?

• • •

• • •

You are in your family's study and you see a gun on the desk. What should you do?

• • •

• • •

You are in your parent's bedroom and you find a gun under the pillow. What should you do?

• • •

• • •

You are at home and in the kitchen and you see a gun in a cabinet. What should you do?

• • •

• • •

You are in your parent's bedroom and you find a gun in the dresser. What should you do?

• • •

• • •

You are in your garage and you see a gun on the shelf. What should you do?

• • •

Appendix B (Continued)

You are in your friend's parents bedroom and you find a gun under the pillow. What should you do?

• • •

You are in your friends garage and you see a gun on the floor. What should you do?

• • •  
• • •

You are in your friend's parents' bedroom and you see a gun on a shelf. What should you do?

• • •

• • •

You are at a friend's house and in the kitchen and you see a gun on a shelf. What should you do?

• • •  
• • •

You are in your friend's parents bedroom and you see a gun on the dresser. What should you do?

• • •

You are in your garage and you see a gun on the workbench. What should you do?

• • •  
• • •

You are in your friends study and you see a gun on the shelf. What should you do?

• • •  
• • •

You are in your friend's parents' bedroom and you see a gun on the bed. What should you do?

• • •

• • •

You are at a friend's house and in the kitchen and you see a gun on the table. What should you do?

• • •  
• • •

You are in your friend's parents bedroom and you see a gun under a dresser. What should you do?

• • •

You are in your garage and you see a gun on the car. What should you do?

• • •  
• • •

You are in your friends study and you see a gun on the desk. What should you do?

• • •  
• • •

You are in your friends study and you see a gun on the floor. What should you do?

• • •

• • •

You are at a friend's house and in the kitchen and you see a gun in a cabinet. What should you do?

• • •  
• • •

You are in your friend's parents bedroom and you find a gun in the dresser. What should you do?

• • •

Appendix B (Continued)

You are in your friend's garage and you see a gun on the shelf. What should you do?



You are in your friends study and you find a gun on in a drawer. What should you do?



You are in the parking lot at the mall with your parents and you see near one of the cars is a gun. What should you do?



You are walking home from school and on the corner you see a small gun in the bushes. What should you do?



You are walking to check the mail and you see a gun on the ground near the mailbox. What should you do?



You go outside to play on the playground and you see a gun under the slide. What should you do?



You are in your friend's garage and you see a gun on the workbench. What should you do?



You just got to school and your best friend tells you that they have a gun in their bag and show you it. What should you do?



You are at you're grandpa's house and he just got back from a hunting trip, you see his bag with his gun in the hallway. What should you do?



You are at a friend's house playing hide and seek and you go into the closet. There's a gun on the floor. What should you do?



You go to the park and you see a circle of children looking at something on the floor, when you get close you see a gun on the ground. What should you do?



You are in your friend's garage and you see a gun on the car. What should you do?



You are at a restaurant with your parents and in the bathroom you see a gun. What should you do?



You go to your friends house, and they show you their mom's gun and ask if you want to play with it. What should you do?



You are walking home from school and on the corner you see a small gun in the bushes. What should you do?



You are at your friend's house, and you go outside to play, and you see that there is a gun with bullets next to it in the driveway. What should you do?





## Appendix C

### Teacher Oral Proficiency Check

# Proficiency Check

The following questions will be reviewed orally with the teacher after they have successfully reviewed the training materials. Ask each question to the teacher. If they answer correctly deliver specific praise for that answer. If they answer incorrectly deliver corrective feedback and continue through the proficiency check. If they do not get 100% correct ask them to review materials again. Deliver the entire proficiency check again once they have reviewed the materials.

Question	Check if Correct
What are the safety skills that you are trying to teach the students?	
What method are you using to teach the children these skills?	
What are the four components of BST?	
What is the first thing that you will do on day one of BST sessions?	
After you discuss the dangers of firearms what do you do with the students?	
When delivering instructions what will you say to the children? (Ask the teacher for an example of what they will say and make sure they include all of the components from the manual)	
What is corrective feedback? (Demonstrate the safety skills to the teacher, but leave out a step, and ask the teacher to demonstrate how they would deliver corrective feedback)	
What are the steps in modeling the skills to the students? (Have the teacher show you the skills)	
After the skills have been modeled to the students what should be done?	
What will you do to practice these skills?	
How many times should each child practice the skills?	
Demonstrate how you will set up a role play. (Use an actual role play card)	
How many times should each child role play the skills on the first day?	
What will be done on day two of the curriculum?	
How many times should each child role play the skills on the second day?	

Appendix D

Treatment Fidelity Data Sheet

# Treatment Fidelity Data Sheet

The following questions will be reviewed by the researcher while watching a video of the teaching sessions. RA's will score each video for these following teaching components

---

Question	Check if Completed
----------	--------------------

---

**FIRST DAY**

---

**Teacher initiated conversation with children**

---

**Teacher told children the dangers of playing with fire arms**

---

**Teacher correctly identified the safety skills**

---

**Teacher modeled the skills for the students**

---

**Teacher had the children practice the skills verbally**

---

**Teacher had each child role play the skills for two correct times, rotating children after each try. List each child and provide a check mark for each successful role play for each child.**

---

**Teacher used feedback correctly (praise for correct responses, correction of incorrect responses). List each child and provide a check for each correct use of feedback for each child.**

---

**SECOND DAY**

---

**Teacher initiated conversation with children**

---

**Teacher told children the dangers of playing with fire arms**

---

**Teacher correctly identified the safety skills**

---

**Teacher modeled the skills for the students**

---

**Teacher had the children practice the skills verbally**

---

**Teacher had each child role play the skills for four correct times, rotating children after each try. List each child and provide a check mark for each successful role play for each child.**

---

**Teacher used feedback correctly (praise for correct responses, correction of incorrect responses). List each child and provide a check for each correct use of feedback for each child.**

---