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Evaluation of video modeling for teaching abduction prevention skills to children diagnosed with autism and aspergers disorder

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Evaluation of Video Modeling for Teaching Abduction Prevention Skills
to Children Diagnosed With Autism and Aspergers Disorder

by

Danielle Godish

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
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Keywords: behavioral skills training, in situ training, lure, safety skills, in situ assessment

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Evaluation of Video Modeling for Teaching Abduction Prevention Skills to Children Diagnosed With Autism and Aspergers Disorder

Danielle S. Godish

ABSTRACT

Abduction prevention skills are crucial for any child to have. Unfortunately there has been a lack of research on teaching children with autism and aspergers these skills. Video modeling has been shown to be an effective method to teach children with autism various skills. Video modeling has also been shown to be cost efficient and easily implemented across various people and settings. The purpose of the present study was to assess the effectiveness of the video modeling technique for teaching children with autism and aspergers abduction prevention skills. The second purpose of the present study was to investigate the effectiveness of BST and IST for teaching children with autism and aspergers abduction prevention skills if video modeling was not effective. The results showed that the utilization of video modeling was effective in teaching all four participants abduction prevention skills.
Introduction

Every year an estimated 797,500 children are abducted which results in an average of 2,185 children that go missing each day. Although, most children that are included in this statistic are victims of family abductions (National Center of Missing and Exploited Children, 2002), there are an estimated 115 stereotypical kidnappings that occur each year. Stereotypical kidnappings is defined as abductions perpetrated by a stranger or slight acquaintance and involving a child who was transported 50 or more miles, detained overnight, held for ransom or with the intent to keep the child permanently, or killed (National Incidence Studies of Missing, Abducted, Runaway, and Thrownaway Children, 2002). If children have the skills in their repertoire to take appropriate action when they are approached by a stranger it can drastically decrease the probability that they will be abducted.

Various studies have shown that behavioral procedures are successful in teaching typically developing children abduction prevention skills. These procedures include video modeling with rehearsal (Carroll-Rowan & Miltenberger, 1994; Poche, Yoder, & Miltenberger, 1988), behavioral skills training (BST) with correspondence training (Olsen-Woods, Miltenberger, & Foreman, 1997), and BST (Holcombe, Wolery, & Katzenmeyer, 1995; Johnson et al., 2005; Poche, Brouwer, & Swearingen, 1981). BST has been proven to be the most effective in teaching children abduction prevention skills (Miltenberger & Olsen, 1996) although the addition of in situ training can increase its effectiveness (Miltenberger, 2008). Not only has BST been effective in teaching children
abduction prevention skills, but it has also been shown in the research literature that it has been successful in teaching children other types of safety skills as well. These safety skills include but are not limited to firearm injury prevention skills (e.g., Himle, Miltenberger, Flessner, & Gatheridge, 2004), sexual abuse prevention (e.g., Miltenberger, Thiesse-Duffy, Suda, Kozak, & Bruellman, 1990), and fire safety skills (e.g., Jones, Kazdin, & Haney, 1981). The utilization of instruction, modeling, rehearsal, and feedback has been successful in both individual and group trainings (e.g., Carroll-Rowan & Miltenberger, 1994).

Carroll-Rowan and Miltenberger (1994) compared the effectiveness of BST plus video modeling with a BST procedure that was implemented by Head Start teachers. The authors assessed 62 typically developing 4 and 5 year olds. The children were randomly assigned to one of three conditions; videotape, teachers manual, and control. In the videotape condition the children watched a videotape portraying child actors getting approached by male and female adults. The adult actors attempted to lure the children to go with them and the child actors demonstrated the appropriate safety skills. After viewing the videotape the children were required to participate in behavioral rehearsal of the correct safety skills and received feedback for correct and incorrect responses. In the teacher’s manual condition, a Head Start teacher taught from a manual that entailed the same situations that were shown in the videotape. During the teaching with the manual the children were required to engage in behavioral rehearsal, and feedback was given for correct and incorrect responses. In the control condition the children received no formal training until the ending of the study. The results of this study showed that both training conditions produced better results than the control condition but that the kids in the
teacher manual condition plus BST retained the skills better than the children in the video modeling plus BST condition.

Johnson et al. (2005) examined the effectiveness of BST with in situ training in teaching abduction prevention skills to seventeen typically developing preschool children. Results of this study showed that all of the children performed the correct safety skills in three consecutive in situ assessments after training, although different children required different numbers of training sessions to reach criterion. Eight of the seventeen participants were available for the three month follow up assessment. During the follow up assessment 62% of the children performed the correct safety skills. 37% of the children engaged in the correct verbal response of saying “no” to the lure, but they did not run away and tell an adult.

In situ training (IST) is conducted when the participant fails to demonstrate the safety skills during the in situ assessment. Immediately upon failure to use the skills, the trainer appears in the environment and provides on-the-spot training consisting of further rehearsals of the safety skills until the participant exhibits the correct response 3-5 consecutive times in the environment where the safety threat has just occurred (Beck & Miltenberger, 2009). Because BST often is conducted in a training setting that is different from the natural environment in which the skills are needed, the skills may fail to generalize to the natural setting (Miltenberger, 2008). In situ training is implemented following the failure of BST to promote the generalized use of the safety skills (Miltenberger, 2008).

Johnson et al. (2006) conducted a study evaluating the effectiveness of BST by itself versus BST plus in situ training in teaching a group of children abduction
prevention skills. The authors randomly assigned the children to one of three conditions; BST, BST plus in situ, or control group. The children in the BST and BST plus in situ groups received behavioral skills training but they differed in one way. Following the third BST session the BST plus in situ training group received in situ training. If the child responded correctly to the lure the trainer appeared and praised the child. If the child responded incorrectly to the lure the trainer entered the situation and performed BST with the child until he or she demonstrated the correct responses a number of times. The results of this study showed that initially BST plus in situ training was not more effective that BST alone for teaching children abduction prevention skills. But, at the three month follow up the children that were in the BST plus in situ training group displayed the targeted responses more than the children in the BST alone group.

Beck and Miltenberger (2009) conducted a study evaluating the effectiveness of a commercially available abduction prevention video to teach six typically developing children abduction prevention safety skills. The researchers also assessed the effectiveness of parent implemented in situ training when the child did not demonstrate the safety skills when assessed after viewing the prevention video. The authors conducted the in situ assessments before and after the participants viewing of the prevention video. During baseline, none of the six participants engaged in the abduction prevention skills. After viewing the prevention video none of the participants engaged in the abduction prevention skills. After in situ training was implemented all of the participants exhibited the skills.

Children with disabilities may be at a greater risk for being abducted by strangers than children without disabilities (e.g., Clees & Gast, 1994). In spite of this fact, there is a
lack of research on teaching abduction prevention skills to children with developmental disabilities. The studies that have been conducted have utilized a constant time delay procedure with multiple exemplars of strangers, lures, and settings (e.g. Gast, Collins, Wolery, & Jones, 1993). Deficits in both language and discrimination skills may lessen the ability of children with disabilities to discriminate between the occurrence of a crime or have the skills to challenge, escape, or report the incident to a responsible adult (Clees & Gast, 1994). A state wide survey of parents and special educators indicated that 95% of the professionals and 77% of the parents rated “resisting the lures of strangers” as a critical safety skill. A national survey of preschool teachers identified resisting the lures of strangers as one of the two most important safety skills for preschoolers with disabilities. These teachers reported that they taught this skill more often than any other single safety skill (Holcombe et al., 1995).

One of the most prevalent childhood developmental disorders is autism. Autism is a part of the Pervasive Developmental Disorders group classified in the DSM-IV-TR (American Psychiatric Association, 2000). It is a disorder that impairs language and social interactions, and restricts behaviors, interests and activities of the children that suffer from it.

There have been very few studies conducted on teaching children with autism safety skills. But, there have been numerous studies on teaching children with autism social, communication, and functional skills such as, socialization and conversational speech (e.g. Charlop & Milstein, 1989; LeBlanc et al., 2003; Maione & Mirenda, 2005; Nikopoulos & Keenan, 2004). This training utilized video modeling. Video modeling is a behavioral technique that uses videotapes rather than live scenarios for the child to
observe, thus allowing the focus of attention to be concentrated on the video tape (McCoy & Hermansen, 2007).

One of the main reasons why video modeling is more widely used than other behavioral techniques to teach children with autism various skills is because it is easy and convenient to implement. Video modeling can be implemented in many different settings such as in the home, school, or community. It is also not very hard or costly to develop a video vignette of a specified desired behavior. Charlop-Christy, Le, and Freeman (2000) compared video modeling with in vivo modeling in teaching children with autism. The researchers found that not only was video modeling more effective than in vivo modeling in teaching children with autism, but it was also less costly to utilize the video modeling technique.

When developing the videotape the researchers are able to attend to specific needs and features of the individual. Video modeling can compensate for some social deficits in children with autism. By viewing the videotape children do not have to engage in any social interactions. They also do not have the added social pressures such as requirements of eye contact, which may distract them from the observation. It can also enhance motivation and increase the child’s attention because of its novelty to the learning environment (Charlop-Christy et al., 2000).

Charlop-Christy et al. (2000) identified several reasons why video modeling is effective in teaching specific skills to children with autism. Video modeling may compensate for children’s stimulus overselectivity. Children with autism may have difficulty responding to multiple cues in their environment. The behavioral technique attempts to compensate for the child’s stimulus overselectivity by having the camera
zoom in closely on the relevant cues to learn the behaviors. Video modeling also enhances motivation because video viewing is a low-demand activity found in most children’s homes and appears to be naturally reinforcing to children (Shipley-Benamou, Lutzker, & Taubman, 2002).

It has been shown that video modeling has been effective in teaching children with autism various skills. However, there has yet to be a study conducted on teaching abduction prevention skills to children diagnosed with autism utilizing the video modeling technique. The purpose of the present study was to assess the effectiveness of the video modeling technique for teaching children with autism abduction prevention skills. The second purpose of the present study was to investigate the efficacy of BST and/or IST for teaching children with autism abduction prevention skills. BST and/or IST were utilized if the video modeling technique failed to be successful in teaching these participants the safety skills or if the skills failed to maintain overtime.
Method

Participants

Four boys, ages 7 or 8 years old, participated in this study. Each child was diagnosed with an autism spectrum disorder (ASD). The participants all exhibited language ability and intellectual functioning in the near normal range. Three of the participants were recruited through the Center of Autism and Related Disabilities (CARD) and one participant was referred by a local psychologist.

During the initial meeting with each participant, the principal investigator assessed whether the participant would be eligible for the current study. First, the researcher asked each participant to describe events occurring in the context of the meeting. Descriptions included details about different characters that the child was viewing on the television (e.g. who the characters were, what the television show was about, what they liked and disliked about the show) and describing pictures in a magazine (e.g. what was occurring in the pictures the pictures, what the models/characters in the pictures were wearing and what they were doing). In addition, the researcher engaged in a brief conversation with each participant to assess his verbal abilities. Conversations included conversing about their schools, classrooms, friends, and their preferred activities and why they enjoying engaging in those preferred activities.

Ethan, 7 years of age, Riley, 7 years of age, and Alexander, 8 years of age, were all diagnosed with autism. Ethan and Riley both attended second grade at a public elementary school and were in a classroom specifically for children diagnosed with high
functioning ASD. However, Riley only attended that classroom for a quarter of the school day. The rest of the school day, Riley was in a classroom with typically developing second graders. Alexander attended third grade in a mainstream elementary school. James, 7 years of age, was diagnosed with aspergers disorder. James also attended second grade in a varying exceptionality classroom in a public elementary school. This type of classroom is for children who function at a more advanced level than is appropriate for children with a developmental disability but who are not able to integrate with typically developing children in terms of functional and intellectual abilities. All of the participants displayed appropriate expressive and receptive speech. They were able to hold a simple conversation and were able to describe events.

Setting

Baseline and post training assessments and in situ training took place in the community at local big box stores such as grocery and retail stores, as well as in the local community park. Video modeling and IST took place at the participant’s home during the late afternoon hours during the business week and/or during the weekend.

Materials

Three DVDs were developed, each consisting of multiple exemplars of the four most common lures delivered to children by strangers. The length of each DVD ranged from 5-6 minutes. Each of the three DVD’s had a narrator to instruct the participants on how to engage in the correct abduction prevention skills. The narrator also described what happened prior to the showing of an exemplar. For example, if a scenario consisting of an assistance lure being delivered from a stranger to a child was about to shown, the narrator said the following: “What you are about to see is Billy being approached by a
stranger, someone he does not know. The stranger is going to ask Billy to help him find his lost puppy. Billy will say “No” to the stranger, quickly get away, and tell his mom what just happened. Let’s watch!” After the exemplar was presented, the narrator then said “Billy did a great job getting away from the stranger. Can you tell me what you are supposed do if a stranger asks you to leave?” After a pause, the narrator started speaking again and said, “If you said you should say no, get away, and tell an adult, you are right!”

Both male and female peer and adult models were used to promote generalization of the abduction prevention skills. The exemplars consisted of a peer model engaging in the correct target behaviors as well as two additional adult models posing as “the trusted adult” and “the stranger.” The peer model was left alone for a moment by one of his or her parents, teachers, or another trusted adult at a location in the community. Another adult model (the stranger) then approached the peer model and delivered one of the four lures (to be described later). Once the lure was delivered by the adult model, the peer model ran over to the trusted adult within 10s of the approach of “the stranger” and told the trusted adult within 5s of approach that a stranger came up and asked her to leave. Contingent on the peer model engaging in the correct safety responses, the trusted adult delivered enthusiastic verbal praise to the peer model and thanked them for reporting what had happened.

**Target Behavior**

One target behavior, consisting of three steps was measured in response to an abduction lure presented by a confederate posing as a stranger. The steps within the target behavior were to say “no.” walk/run away from “the stranger” to a trusted adult within
10 s of the delivery of one of the lures, and report the lure to the adult within 10 sec.

During the assessments, 4 types of lures were used by the confederate.

The four types of lures were simple, incentive, authority, and assistance lures. These lures were randomly pulled from a hat without replacement. Therefore each participant received multiple exposures to each of the four lures. The simple lure was a request for the child to go with the stranger. For example, “How would you like to go with me to take a walk?” The authority lure was a request to leave with an implication that an authority figure (such as the child’s parents or teacher) approved of the child’s leaving. Such as, “How would you like to go with me to the playground? Your teacher said it was okay for you to come with me.” The incentive lure was a request to leave with the promise of an incentive. For instance, “I’ve got a nice surprise in my car. Would you like to come with me and see it?” (Poche et al., 1981). Lastly, the assistance lure was a request to leave with the stranger to help the individual with a specific task. For example, “Can you help me carry these things to my car?” (Miltenberger & Olsen, 1996).

Data Collection

Target behaviors were scored as follows; if a participant agreed to leave with the confederate he received a score of 0. If a participant did not leave with the confederate but failed to engage in any of the three target behaviors he received a score of 1. A score of 2 was warranted if a participant told the confederate “No” contingent on the delivery of a lure, but, did not engage in the other two target behaviors. If a participant told the confederate “No” contingent on the delivery of a lure, and got away from the confederate toward the trusted adult within 10s of the delivery of a lure, but failed to report to the adult that he had just been approached by a stranger, then the participant received a score
of 3. If the participant engaged in all three of the targeted behaviors, then he received a score of 4.

_Treatment Fidelity_

During the video modeling intervention a research assistant took data on the percentage of time that the participant attended to the video. In addition, the research assistant took data on the percentage of questions the participant answered correctly during the video modeling session and how many times the child was prompted by their parent to attend to the video.

_Assessment_

In situ assessments were conducted to assess each participant’s abduction prevention skills during baseline and after intervention. The assessments took place in local community settings. A confederate, unknown to the participants, conducted the in situ assessments. The confederates were men and women in their twenties and thirties who all attended the local university.

A confederate approached the child while he was left alone at a predetermined time and place with the parent away from the child but within sight (e.g., down the end of the isle at a supermarket). The confederate approached the child and delivered one of the four abduction lures. The lures were randomly chosen to be used in the assessments. If the child agreed to go with the confederate, the confederate made up an excuse to leave and walked away. If the child told the confederate “No” but did not walk/run away within 10s of the delivery of a lure, the confederate walked away. If the child engaged in the correct safety responses of running away and the parent, the parent thanked the child and delivered verbal praise.

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The research assistant whom conducted the assessments kept in constant contact with the participant’s parent via cell phone throughout the entire assessment. One of the reasons why the research assistant and the parent of the participant kept in constant contact was so the parent could hear exactly what was happening during the assessment. Another reason for the constant contact via cell phone was for the purposes of collecting interobserver agreement data.

**Interobserver Agreement**

The parent of the participant served as a second observer and recorded whether their child engaged in the target behaviors. Interobserver agreement (IOA) was calculated for four target behaviors; whether or not the participant agreed to leave with the confederate, if the participant said “no” upon delivery of an abduction lure, whether or not the participant got away from the confederate, and lastly, if the participant told their parent that he was just approached by a “stranger.” IOA was calculated by dividing the number of agreements by the number of agreements plus disagreements multiplied by 100. The percentage agreement was 92% (range 75% to 100%) for Ethan, 94% (range 50% to 100%) for Riley, 96% (range 75% to 100%) for Alexander, and 93% (range 25% to 100%) for James.

IOA for a few of the assessments was low because of problems with cell phone reception in some of the locations where the in situ assessments were conducted. There were a couple of instances where the parent was unable to hear via cell phone what was occurring during the in situ assessments. Therefore, the parent and the research assistant were unable to agree on what happened during the assessment.
Side Effects and Social Validity Questionnaire

To assess any possible changes in the participants’ behavior a social validity questionnaire (Johnson et al., 2005) was distributed amongst the parents of the participants at the conclusion of the study. This questionnaire was also used to assess parental attitudes about the training (see Appendix A).

Experimental design

A non-concurrent multiple baseline design across participants was used to assess the effects of video modeling and in situ training.

Procedure

In situ assessments were conducted on at least three different occasions to assess the participant’s abduction prevention skills before training. Video modeling was then implemented and, at the conclusion of each video modeling session, in situ assessments were conducted to assess the participants’ safety skills. If the participants did not exhibit all of the safety skills at the end of the video modeling intervention, BST and IST were to be implemented to teach the safety skills. Once the safety skills were demonstrated, post training assessments were conducted. If the skills failed to maintain in situ training was conducted and further assessments were conducted within 1-3 days of the in situ training to assess whether or not the participants continued to exhibit the abduction prevention skills.

Baseline. In situ assessments were conducted with each participant until a stable level of data was achieved. No feedback or other consequences were delivered during baseline.
**Video modeling.** A research assistant went to the participant’s home three times in one week to deliver the DVD to the parent and have the parent ask their child to watch it. Throughout the viewing of the DVD, a research assistant paused the DVD and then prompted the child to answer the narrator’s question. After the child answered the question, the research assistant played the DVD again and the narrator provided the correct answer. If the child got the answer right, the research assistant delivered verbal praise to the child. If the child did not correctly answer the question, the research assistant prompted the child to correctly answer the question and then asked him or her again until the child got it right.

Within one hour of the child watching the DVD, the parent took their child to a local community setting and a different research assistant conducted an in situ assessment to assess the participant’s safety skills. This procedure was repeated two times with two more videos. If the child did not score a 4 in three consecutive assessments after watching all three videos, BST was to be implemented. However, each child reached criterion, so BST was not necessary.

**Follow up assessment.** Maintenance of the safety skills was assessed one week, 3 weeks, and 5 weeks after the conclusion of the training of the abduction prevention skills. In situ assessments were similar to those in the prior conditions. If an individual failed to score a 4, in situ training was used and a post training assessment was conducted 1-3 days later.

**IST.** In situ training was conducted if the participant failed to engage in the safety skills during the in situ assessment at follow up. The participant’s parent conducted the in situ training. Either one or both of the participant’s parents were trained by a research
assistant to implement in situ training. The parent trainings all occurred at the participant’s home without the participant present. Each of the trainings lasted between 20-30 minutes. To train the parent to conduct IST, the researcher explained the procedure, modeled the procedure for the parent, and had the parent rehearse the skills with feedback until they exhibited the skills without prompts.

To conduct in situ training the parent approached their child immediately after the confederate left the area during an in situ assessment, identified to their child how dangerous it was to talk to someone they did not know, and required their child to rehearse the correct safety skills with them three consecutive times. After each rehearsal, the parent praised the child for correct responses. After each in situ training session implemented by the participant’s parent, an assessment was scheduled to reassess the child’s safety skills. Training was completed when the child scored a 4 in 3 consecutive assessments.
Results

Video modeling was effective in teaching all four participants the abduction prevention skills. The safety skills also maintained during the follow up assessments for two out of the three participants who were available for follow-up assessments (see Figure 1).

During the first and third baseline assessment Riley scored a 1. When he was approached by the confederate and after the delivery of a lure, he did not agree to leave with the stranger. He ignored the confederate and stayed in their vicinity and did not report the incident to his mother. During the second baseline assessment, Riley scored a 0 because he agreed to leave with the confederate after the delivery of a lure. Once video modeling was implemented, Riley scored a 4 during all in situ assessments. The skills maintained for Riley throughout the follow up assessments at 1, 3, and 5 weeks.

During baseline, James agreed to leave with the confederate on two out of the three assessments. During the second baseline assessment, he did not agree to leave with the confederate, but he did not tell the confederate “no.” Nor did he run away from the stranger or report this incident to his mother. After James watched the first video during intervention, he scored a 0. During the second in situ assessment after the second installation of video modeling, James’s score increased to a 2; he said “no” when the confederate delivered a lure, however, he did not run away from the confederate nor did he report the incident to his mother. After the third installment of video modeling, James scored a 4 during the in situ assessment. An additional two in situ assessments were
implemented with James at the conclusion of the video modeling intervention to ensure he acquired the safety skills. Despite James acquiring all of the safety skills during training, he had variable responding during follow up. During the one week follow up assessment, James scored a 0. At that point, James’s mother immediately implemented in situ training. An assessment was conducted the next day to assess the effects of the in situ training and James scored a 4. During the third week follow up assessment, James scored a 2; he did not agree to leave with the stranger but he did not run away from the confederate nor did he report the incident to his mother. His mother immediately implemented in situ training again and ensured that James engaged in all three targeted safety skills during three consecutive role-plays. A post-treatment assessment was conducted three days later and James scored a 4. During the five-week follow up assessment, James engaged in all of the safety skills and scored a 4. However, during the next follow up assessment, which was conducted 7 weeks after the conclusion of the video modeling training, James agreed to leave with the confederate and scored a 0. Another post-treatment assessment was conducted a few days later and he scored a 2. At the 9 week follow up assessment James engaged in all of the targeted safety skills and scored a 4. At this point, a decision was made to add an incentive in addition to the in situ training to stabilize James’s responding to the lures. An incentive was added because of James’s variable responding during the follow up assessments. It was hypothesized that James’s variable responding was due to a compliance issue instead of a lack of skill acquisition. With the addition of an incentive at the 10 week follow up assessment James engaged in all of the targeted safety skills and scored a 4. Nonetheless, an assessment was conducted a week later with the inclusion of the incentive, and James scored a 2.
Alexander engaged in two of the three safety skills during three out of the four baseline assessments. During these assessments, he did not agree to leave with the confederate and he immediately ran away from the stranger after the delivery of the lure. Nevertheless, he did not report the incident to his mother. During the second baseline assessment, Alexander did not agree to leave with the stranger, but he did not leave the vicinity of the confederate nor did he report the incident to his mother. Once video modeling was implemented, Alexander immediately acquired the abduction prevention skills and scored a 4 through out all three video modeling assessments. However, at the conclusion of the implementation of the intervention, Alexander’s parents terminated his participant in the study. Therefore, follow up assessments could not be conducted with this participant.

Ethan agreed to leave with the confederate and scored a 0 during the first baseline assessment. During the second baseline assessment, Ethan scored a 1. He did not agree to leave with the confederate but he failed to engage in the three targeted stranger safety skills. For the remaining three baseline assessments Ethan scored a 2. He did not agree to leave with the stranger and said “no,” but he did not leave the vicinity of the stranger nor did he report the incident to his mother. Once the video modeling intervention was implemented, Ethan scored a 4 during the first in situ assessment following intervention. Ethan maintained his score of 4 through out the remainder of the video modeling assessments and all through out the follow up assessments.
Figure 1. Safety scores of each participant during in situ assessments
During the video modeling intervention, data were taken on the total number of verbal prompts delivered to each participant by their parent, the total percentage of the video that was watched by the child, and the total percentage of correct responses to the narrator’s questions in each of the videos (see Table 1.).

During the first session of video modeling training, Ethan required verbal prompts 4 times while watching the video. He watched 98% of the video even though he required several prompts during the video viewing. In addition, Ethan answered 40% of the questions correctly throughout the first session of training. During the second session of video modeling, the number of prompts decreased to 3 and Ethan’s engagement in the video decreased to 94.4%. However, Ethan answered 100% of the narrator’s questions correctly. Ethan did not require any prompts from his parent to stay on task during the third session of video modeling training. In addition, Ethan viewed 99% of the video and answered 100% of the narrator’s questions correctly.

James did not require any prompts throughout all three video modeling training sessions. He also viewed 100% of each of the videos and answered 100% of the narrator’s questions correctly during every video modeling training session.

Riley did not require any verbal prompts to stay on task during the first and third video modeling training sessions and watched 100% of the videos. During the second training session Riley required one prompt and watched 98% of the video. Riley answered 40% of the narrator’s questions correctly during the first video modeling training session. However, he answered 100% of the questions correctly during the second and third training sessions.
Alexander did not require any prompts during each of the video modeling training sessions and watched 100% of each of the videos. He answered 80% of the narrator’s questions correctly during the first training session and answered 100% correctly during the second and third training sessions.

The parents of three out of the four participants filled out the social validity/side effects questionnaire and the results are displayed in Table 2. Two out of three reported a very slight change in their child’s behavior (Ethan and Riley were less scared after participating). All three parents who completed the questionnaire reported that they were very pleased with their child’s participation in the current study.

Table 1.

<table>
<thead>
<tr>
<th>Treatment Fidelity Results During Video Modeling Training Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Ethan</td>
</tr>
<tr>
<td>James</td>
</tr>
<tr>
<td>Riley</td>
</tr>
<tr>
<td>Alexander</td>
</tr>
</tbody>
</table>
Table 2.

*Results of the Social Validity/Side Effects Questionnaire*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Scared</th>
<th>Cautious</th>
<th>Upset</th>
<th>Other changes</th>
<th>Pleased with child’s participation</th>
<th>Satisfaction with researchers’ communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>James</td>
<td>No change</td>
<td>No change</td>
<td>No change</td>
<td>No other changes</td>
<td>Very pleased</td>
<td>Very satisfied</td>
</tr>
<tr>
<td>Riley</td>
<td>Less scared</td>
<td>No change</td>
<td>No change</td>
<td>“Used to always stay close while in a store, now has more confidence and wants to roam more freely”</td>
<td>Very pleased</td>
<td>Very satisfied</td>
</tr>
<tr>
<td>Ethan</td>
<td>Less scared</td>
<td>No change</td>
<td>No change</td>
<td>No other changes</td>
<td>Very pleased</td>
<td>Very satisfied</td>
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Discussion

The results of this study showed that video modeling was effective in teaching all four participants abduction prevention skills. Ethan and Riley maintained the safety skills during all follow up assessments. James had inconsistent responding throughout follow up. In situ training was implemented with James to promote maintenance of the safety skills. After the implementation of in situ training and an incentive, James still demonstrated variable responding during the follow up assessments. Alexander was not available for follow up because he dropped out of the study at the conclusion of the video modeling intervention.

Although video modeling lead to the acquisition of the skills for all participants, it seemed that the rate of skill acquisition was related to whether the skills were maintained. According to Delano (2007) video modeling often facilitates rapid skill acquisition, maintenance, and generalization across settings, people, and materials. In the current study, when there was immediate skill acquisition during training, all abduction prevention skills were maintained. When there was gradual acquisition for James, the skills were not maintained.

The rapid skill acquisition for the majority of the participants could be attributed to several factors associated with video modeling. These factors include the utilization of multiple exemplars in each of the videos (e.g. Stokes & Baer, 1977), the compensation for over selectivity as the participants could focus exclusively on the video, and alleviating the difficulty of having to respond to multiple cues in the environment as the
participants responded to the video rather than to multiple individuals involved in role playing the skills (Charlop-Christy et al., 2000).

In the majority of studies that assessed the effects of video modeling on teaching functional, communicative, or social skills to children diagnosed with autism, those that conducted follow up assessments found that the skills still maintained over time (Haring, Kennedy, Adams, & Pitts-Conway, 1987; Nikopoulos & Keenan, 2007; Shipley-Benamou, Lutzker, & Taubman, 2002). Therefore, these results are somewhat consistent with previous research conducted on video modeling in that two of three individuals who participated in follow-up assessments maintained the skills.

During the present study, all of the participants acquired the abduction prevention skills during training and were able to engage in the skills when a stranger approached them during the in situ assessments. However, only 2 of the 3 participants that were available for follow up maintained the skills. These results show that there was a distinction between acquisition of the skills and performance of the skills. All four of the participants went through the exact same training. The parents of each participant were asked by the researcher to not talk about stranger safety to their child during the course of their participation in the study. Therefore, a question arises as to why Ethan, Alexander, and Riley were able to perform all of the safety skills immediately after training during the in situ assessments and were able to maintain the skills during follow-up (with the exception of Alexander) and James was not.

During the follow-up assessments for James there was an increasing trend of skill acquisition up until the 5-week follow up assessment. During the 7-week follow up assessment James did not engage in any of the abduction prevention skills and agreed to
leave with the stranger. How was it that James was previously capable of engaging in all of the targeted safety skills and suddenly was not able to perform the skills during the 7-week follow up assessment? Miltenberger et al. (2004) came across a similar problem with one of their participants when they evaluated the effectiveness of behavioral skills training to prevent children from playing with guns. During their study, 3 out of the 6 participants acquired the targeted skill using BST alone and 2 of the participants required in situ training to aide in the acquisition of the skill. However, 1 participant failed to engage in the safety skills after several sessions of in situ training. Therefore, the researchers added an incentive in addition to the BST and in situ training to aide in the participant’s engagement in the safety skills. Immediately after the incentive was added, the participant engaged in the skills and maintained the skills during multiple follow up assessments. Because of the inconsistency of James’s responding, an incentive was added on top of the in situ training to try and increase James’s performance of the safety skills just as in the Miltenberger et al. (2004) gun prevention study. However, the incentive was not as successful as it was during the Miltenberger et al. (2004) study. During the first assessment that the incentive was in place, James successfully engaged in all of the safety skills. During the second follow up assessment in which the incentive was in place, James did not agree to leave with the confederate and he said “no” as soon as the confederate approached him, before a lure was even delivered. Nonetheless, he did not run away from the confederate nor did he report the incident to his mother. Because the confederate did not get a chance to deliver the lure, she approached him again. This time, as soon as the confederate approached James, he described to her exactly what was going to happen and that he did “not want to play” with her. The confederate ignored the child’s request and
immediately delivered the lure, but James redirected the conversation and began talking about different stimuli in the environment. At that point, the confederate made up an excuse and walked away, and James’s mother conducted the in situ training with him. At this point it was decided that data collection would be complete.

It is unfortunate that James did not exhibit the skills consistently during the maintenance assessment even after in situ training was implemented and an incentive was provided. This is one of the few instances in the literature on safety skills training in which in situ training was not effective. It is not clear why James failed to engage in the skills even after in situ training and the addition of an incentive. One possible explanation, as posited by his mother, is that James thought the in situ assessments and trainings were a game. For instance, during one of the last follow up assessments James pretended to be a store employee and reported over his “walkie” that a stranger was approaching him. In addition, once James engaged in all of the safety skills, he prompted his mother to do the in situ training while he was leading and directing the entire training. These anecdotes suggest James was aware of exactly what was going on during the in situ assessments. One of the most important aspects of in situ training is that the individual is not aware that he or she is being assessed. Considering that James was well aware of what was going on during the assessments, there may be a reactivity component involved in his failure to exhibit the skills consistently during follow up.

An important finding from the current study was that the utilization of an antecedent only approach was successful in teaching abduction prevention skills to children diagnosed with autism. This was the first study to demonstrate the effectiveness of an instructional approach that did not involve rehearsal and feedback (BST). Beck and
Miltenberger (2009). Poche et al. (1981), Himle et al. (2004), and Gatheridge et al. (2004) were not successful in utilizing an antecedent only approach to teach safety skills to children. There are few reasons why the utilization of instructions and modeling that is incorporated into video modeling procedure may have been effective in this study but not effective in other research.

One possible reason may be that this was one of the first studies to assess the effects of a video modeling intervention in teaching abduction prevention skills to children diagnosed with autism. Most of the previous research focused on safety skill training with typically developing children rather than children with autism. Poche et al. (1988) conducted a similar study and compared video modeling, video modeling plus rehearsal, and a standard stranger safety program incorporating lectures and a discussion to teach typically developing children abduction prevention skills. The researchers found that video modeling was more effective than the standard stranger safety program. However, when behavioral rehearsal was implemented in addition to video modeling, it produced greater results than video modeling alone. In the current study, video modeling alone was effective in teaching all of the participants the safety skills. The increased effectiveness of video modeling in the current study compared to the Poche et al. (1988) study may be due to the differing characteristics of children diagnosed with autism compared to their typically developing peers.

Children diagnosed with autism are known for their qualitative impairments in social interactions and communication, as well as a restricted, repetitive, and/or stereotyped repertoire of behaviors, interests, and activities (Koegel & Koegel, 1995). Typically developing children often show an intense interest in interacting and
socializing with their peers and do not engage in the fixations that children diagnosed with autism often engage in. As a group, children diagnosed with autism have strengths processing visual rather than auditory stimuli (Ayres & Langone, 2005). The effectiveness of the video modeling interventions, in part, may be attributed to the fact that video modeling integrates an effective learning modality for children with autism such as visually cued instruction with a well studied intervention technique (modeling). Typically developing children have the ability to learn from auditory stimuli and do not need the addition of visual stimuli to promote skill acquisition. However, it is not completely clear why video modeling is effective with children diagnosed with autism.

Another possible reason may be the development of the video that was utilized for the video modeling training. Each video consisted of multiple exemplars of children engaging in all of the targeted skills and gave an explicit representation of what each skill looked like. Each of the in situ assessments that were conducted throughout the present study included the same types of lures that were shown on the video. In addition, each video had a narrator summarizing what happened after each showing of an exemplar and asking the child to recite the three abduction prevention skills. The specificity of the video along with the overall robustness of the multiple exemplars may have been a key component in each of the participant’s acquisition of the safety skills.

The current study had several limitations that warrant discussion. First, this was a preliminary study on the assessment of video modeling to teach children diagnosed with autism abduction prevention skills as only 4 subjects participated. Further replication is needed to assess whether video modeling is effective in teaching this population abduction prevention skills.
Second, the present study resulted in inconsistent findings. Only 2 of the 3 participants maintained the safety skills. Future research should assess maintenance of abduction prevention skills across longer periods of time and across other participants.

Another limitation was that follow up data were not obtained for all of the participants. Alexander dropped out of the study before the follow up assessments were conducted because of the development of negative emotional side effects. Alexander was afraid to leave his parents’ side during later assessments, which resulted in his parents terminating his participation in the study. His anxiety appeared to be due to the repeated exposure to the delivery of abduction lures during the in situ assessments in both baseline and following the video modeling intervention.

In the future, researchers may want to assess whether video modeling would be effective in teaching other safety skills to children diagnosed with autism. There has been a plethora of research conducted on teaching safety skills to typically developing children using various behavioral techniques. However, there is a lack of research in same area with children diagnosed with autism. Considering that video modeling was effective in teaching all four participants the abduction prevention skills, video modeling may be effective in teaching other safety skills as well.

There have been numerous studies conducted on teaching younger children diagnosed with autism specific skills through video modeling (Apple, Billingsley, & Schwartz, 2005; Shipley-Benamou, Lutzker, & Taubman, 2002; Simpson, Langone, & Ayres, 2004; Wert & Neisworth, 2003). The participants in the present study were 7 and 8 years of age. Future research may want to assess whether this same intervention would
have an effect with children diagnosed with autism of a different age group, either younger or older than the participants in the current study.

Lastly, future research may want to assess whether video modeling would be effective in teaching abduction prevention skills to children that have lower functioning autism. There has been very little research conducted on assessing the effectiveness of video modeling in teaching specific skills to children of this population. Not only would it be interesting to evaluate the video modeling technique in teaching children diagnosed with lower functioning autism abduction prevention skills, but it would be beneficial to evaluate the same technique in teaching various other skills to these children as well.
List of References


Appendices
Appendix A: Social Validity/Side Effects Questionnaire

Social Validity Questionnaire
1. Compared to before this study my child now appears:
   a. Scared: afraid to leave parents, showing fear of strangers
      - Much more scared
      - A little more scared
      - No change
      - Less scared
      - Much less scared

   If a change occurred, please describe briefly:

   b. Cautious: hesitant to go outside or be alone
      - Much more cautious
      - A little more cautious
      - No change
      - Less cautious
      - Much less cautious

   If a change occurred, please describe briefly:

   c. Upset: concerned about the issue of strangers, personal safety, etc.
      - Much more upset
      - A little more upset
      - No change
      - Less upset
      - Much less upset

   If a change occurred, please describe briefly:

2. Other changes I noted in my child’s behavior are:
   Please describe or mark N/A if no change was observed

3. How pleased are you that your child participated in the study?
   - Very pleased
   - Pleased
   - Neutral
   - Disappointed
   - Very disappointed
4. How satisfied are you with the way the researchers communicated what was going on throughout the study?
   - Very satisfied
   - Satisfied
   - Neutral
   - Unsatisfied
   - Very unsatisfied

5. Did you terminate your child’s participation in the study?
   - Yes
   - No

   If yes, please explain why.

6. Please note any additional comments you have about the study.