January 2013

An Evaluation of a Parent Implemented In- Situ Pedestrian Safety Skills Intervention for Individuals with Autism

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by

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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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Date of Approval:
November 13, 2012

Keywords: street- crossing, in-situ training, most-to-least prompting, behavioral skills training, parent training

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Abstract

This study evaluated a parent implemented in-situ pedestrian safety skills intervention for three individuals with autism. Specifically, this study examined the utility of using a behavioral skills training (BST) to help parents implement the most-to-least prompting procedures in training their children with autism pedestrian safety skills in community settings. A multiple baseline design across participants was used to assess parent implementation of in-situ pedestrian training as well as child participants' independently performed correct skills. Results indicated that parents implemented most-to-least prompting procedures with high levels of accuracy across streets during intervention and fading of BST. All child participants improved their safety skills significantly during intervention. For one child, the acquired skills maintained during follow- up. The percentages of their independent correct use of pedestrian safety skills were similar to those in baseline during generalization probes.

Introduction

Throughout the US and most of the world, pedestrian injury is one of the top reasons for child deaths. For boys and girls ranging from ages 5 to 14 in the United States, pedestrian injury is the third major cause of injury- related death (Borse et al., 2008). Literature has indicated that children with disabilities are at 2-3 times greater risk than typically developing children to be killed in pedestrian accidents (Strauss, Shavelle, Anderson, & Baumeister, 1998). Xiang and his colleagues (2006) found that children with disabilities, ages 5-17, were five times more likely to be struck by a vehicle than typically developing children. In order to provide individuals with the skills they need to make safe street- crossing decisions, there is a great need for effective pedestrian safety skills training interventions.

Literature indicates that when teaching individuals with developmental disabilities general safety skills (including pedestrian safety skills), the outcome from general training was better compared to no training at all. However, when adding direct teaching procedures to training, skill acquisition increased with each added component; discussion of safety skills alone was not as effective as adding behavioral skills training (BST) components to the training in teaching the individuals with developmental disabilities safety skills (Dixon, Bergstrom, Smith, Tarbox, & Tarbox, 2010; Wright & Wolery, 2011). Similarly, utilizing only one or some parts of BST was not as effective as using all

aspects of BST training (Neilson & Bowes, 1994). Numerous studies have shown in situ training has been effective for teaching safety skills to individuals with developmental disabilities including: abduction- prevention (Gast, Collins, Worley, & Jones, 1993; Gunby, Carr, & LeBlanc, 2010), seeking help when lost (Bergstrom, Najdowski, & Tarbox, 2012; Taylor, Hughes, Richard, Hoch, & Coello, 2004), sexual abuse prevention (Miltenberger et al., 1999), and pedestrian skills (Batu, Ergenekon, Erbas, & Akmanoglu, 2004; Blew, Schwartz, & Luce, 1985; Collins, Stinson, & Land, 1993; Horner, Jones, & Williams, 1985; Marchetti, McCartney, Drain, Hooper, & Dix, 1983). Also, studies comparing pedestrian safety skills training in simulated settings with real settings evidenced significantly better acquisition and maintenance of skills in typically developing individuals and individuals with developmental disabilities when training occurred in real settings (Dixon et al., 2010; Mechling, 2008; Wright & Wolery, 2011).

Research examining different pedestrian safety skills trainings for children with autism has shown that utilizing rehearsal with a model intersection and a doll combined with exposure to video recordings of intersections (Steinborn & Knapp, 1982) as well as in- situ BST (on natural street settings), resulted in acquisition, maintenance, and generalization to novel street settings (Neilson & Bowes, 1994). Other studies have found that when using peer modeling and peer tutoring in situ, participants did significantly better when peer modeling was accompanied by instruction, reinforcement, guiding, and prompting (Blew et al., 1985). Studies examining the effectiveness of virtual reality pedestrian training programs for children with autism have shown that when combined with BST components (instruction, modeling, rehearsal, and feedback), training resulted

in acquisition of skills in the virtual environment but minimal generalization to natural street settings (Goldsmith, 2008; Josman, Ben- Chaim, Friedrich, & Weiss 2008).

As discussed above, safety skills training using a variety of different methods shows considerable effects on teaching pedestrian safety skills to individuals with autism. However, very few studies trained individuals or assessed generalization in more than one street setting (Neilson & Bowes, 1994; Steinborn & Knapp, 1982). It is not clear whether individuals with autism trained using the virtual reality would be able to generalize the acquired skills to actual street settings. Furthermore, none of the studies assessed implementation of training by parents or generalization to multiple novel settings. Parent un-involvement is of major concern considering that a large problem commonly involved in teaching individuals with autism is their inability to generalize to new, different or multiple environments, settings, or situations. When teaching a chained skill in the actual setting that the skills would be used, such as training street crossing on an actual street, it is important to examine the type of training that would keep the participant safe and result in rapid and thorough acquisition of skills.

A variety of response prompts (e.g., modeling and physical guidance) have been found to be effective to systematically teach chained responding to individuals with autism (Foxx, 1982; Myrna, Weiss, Bancroft, & Ahearn, 2008). Generally, physical prompts are faded using either most-to-least or least-to-most techniques. The intrusiveness of the prompt continues to be faded as the learner is successfully demonstrating new skills or more intrusive prompts are delivered as necessary for the learner to complete each training trial. Most-to-least prompting is an errorless training

method that involves providing the most intense prompt for the individual to respond correctly. When the individual independently begins to engage in the correct behaviors or responses, the intensity of the prompt is systematically decreased. A study comparing the effects of most-to-least and least-to-most prompting techniques for teaching chained skills to individuals with autism found that most-to-least prompting procedures led to fewer errors than least-to-most prompting procedures (Myrna et al., 2008). It may be inferred that the decreased number of errors associated with using most-to-least prompting procedures may allow for a safer in situ pedestrian safety skills training if they were used as the intervention.

Numerous studies have indicated that most-to-least prompting has been successful in training individuals with intellectual disabilities and autism (Richmond & Lewallen, 1983; Vuran, 2008). Specifically, most-to-least prompting procedures have been shown to be effective in training chained skills (Kayser, Billingsley, & Neel, 1986; McDonnell & Ferguson, 1989; Yilmaz, Birkan, Konukman, & Yanardag, 2010) and pedestrian safety skills (Batu et al., 2004). As indicated by Batu et al. (2004), using most-to-least prompting could be a very viable intervention method when teaching pedestrian safety skills in natural street environments to prevent the occurrence of errors, especially with the initial introduction of an intervention. However, no studies have examined the effectiveness of most-to-least prompting procedures for teaching individuals with autism pedestrian safety skills, particularly, involving parents as interventionists.

The current literature on pedestrian skills training for individuals with autism suggests several implications for future studies and practices. First, generalization of

skills to new and different environments should be systematically promoted through training an individual by their parent and/or caregiver in multiple settings. Furthermore, research needs to examine generalization of target skills in response to untrained stimuli.

Second, it is important to identify a pedestrian safety skills training method that can be readily and easily implemented by parents or caregivers for individuals with autism. Rather than relying on costly materials, technology, or any other specialized programs to train pedestrian skills, identifying training methods or strategies that do not require much parent training, time, cost, or effort would have high social validity, which would promote successful implementation of training. This is an important aspect to examine when considering a readily available intervention, and especially one that can be used long term by parents or caregivers.

Third, most of the studies had minimal family participation. This is also a surprising and alarming finding when considering the length and amount of exposure, experience, and knowledge that parents have in regards to their own children and the impact that these aspects could have on outcomes of training. Literature has evidenced the importance of family involvement when developing and implementing interventions for individuals with autism and has shown significantly positive results for the entire family when they act as the person implementing the treatment or training (Crockett, Fleming, Doekpe, & Stevens, 2007; Dunst & Trivette, 2005; Symon, 2005). Parents have been found to effectively teach their typically developing children abduction-prevention skills (Beck & Miltenberger, 2009) and using parents as internationalists resulted in

better improvements in skill acquisition of children with developmental disabilities (Dixon et al., 2010; Mechling, 2008; Wright & Wolery, 2011).

Training parents using BST procedures to implement pedestrian safety programs have been successful in teaching typically developing children safety skills (Limbourg & Gerber, 1981; Phillips & Todman, 1999; Rivara, Booth, Bergman, Rogers, & Weiss, 1991; Rothengatter, 1984). Behavioral Skills Training (BST) includes instructions, modeling, rehearsal in either simulated or natural settings, and feedback in the forms of praise and correction. However, none of the studies on pedestrian safety skills training of individuals with autism employed BST procedures to train parents so that they may implement intervention procedures to their child with autism. Furthermore, it is not clear from the literature whether the families can implement the pedestrian safety skills training with fidelity or high levels of accuracy.

Fourth, the literature examining pedestrian safety skills interventions for individuals with autism only targeted children and adolescents, ages 5-16. No studies have been conducted to teach older adolescents or adults with autism about pedestrian safety skills, which is an important skill set to learn when preparing to transition to a more independent lifestyle for many individuals with autism.

This study examined parent implementation of in-situ pedestrian skills training that used most-to-least prompting procedures for individuals with autism. The study expands the literature by: using BST for parent training; promoting and assessing parent use of prompting procedures; teaching pedestrian safety skills to individuals with autism in multiple street settings in the community; and evaluating its impact on acquisition,

generalization to novel settings, and maintenance of individual's pedestrian safety skills. This research addressed the following questions:

1. Was BST effective in promoting correct parental implementation of pedestrian safety skills training that employed most-to-least prompting procedures?
2. Did parents generalize their implementation of intervention to a novel setting?
3. Did implementation of in-situ training by parents result in improvement of pedestrian safety skills for individuals with autism?
4. Did the individual's acquired skills generalize to novel settings and maintain at two-weeks follow-up?

Method

Participants

Originally, six families were recruited at the start of the study. For various reasons, three families withdrew from this study. Participants included three individuals with autism (two adolescents and one adult) and their parents. All families were middle class, Caucasian, and two of the families were single- parent homes. The participants were recruited from referrals by behavior analysts in local community agencies and family self- referrals. Information about the study was emailed to local behavior analysts working with families of children and adults with autism who might have benefitted from participating in this study. Inclusion criteria for individuals with autism included the following: (a) being in the age range of 13-25, with a diagnosis of autism; (b) having difficulty with crossing streets independently and safely; (c) being able to understand and comply with one- step verbal directions, and (d) living with a parent who would be willing to be trained and implement intervention. Parents were also asked to confirm their willingness to be trained on implementing intervention procedures for their child in community settings. Exclusion criteria included: (a) not able to understand or comply with one to two step commands; (b) engaged in behavior that would put them in danger in actual street settings (darting, eloping); (c) did not allow their parent to touch them; and (d) parents had prior experience with pedestrian safety skills training.

A.L. was a 14- year- old male with a primary diagnosis of autism and secondary diagnoses of having speech and language impairments. He was in 9th grade while attending a public high school and receiving occupational therapy. He was from a two-parent household. A.L.'s recent high school Individualized Education Plan (IEP) indicated that he was able to follow three to five word directions, verbally approximate single words in response to questions with a verbal prompt and did not initiate communication. With his expressive communication being very poor, he utilized approximations, gestures, and static picture symbol boards to communicate effectively. He demonstrated functional fine motor skills such as writing, cutting, opening packages, and using utensils to eat. More importantly, A.L's IEP indicated that he was unable to discern dangerous situations, did not generalize skills to new settings and was not able to cross streets or be near streets safely, or be in new environments without adult supervision. A.L.'s father provided training to the child; he was 58 and worked from home as a computer programmer.

J.M. was a 15-year-old male diagnosed with autism and attention deficit hyper-activity disorder at age 3 by a licensed psychiatrist. He was placed in the 9th grade at a public high school. His Individualized Transition Plan (ITP) included in his IEP indicated that his word recognition and oral reading levels were at a fourth grade level measured by the Green Brigance: Diagnostic Comprehensive Inventory of Basic Skills II (Brigance, 2010). His reading and math skills were measured at a lower third grade level. His was able to multiply and divide single digit numbers. He had trouble complying with three-step complex directions that were or were not accompanied by picture cues, but was able

to follow two- step directions. J.M. navigated his way around his school without assistance or monitoring, and independently engaged in self- help and daily skills without assistance. He had good fine motor skills and could communicate receptively and expressively. He displayed behaviors that could be described as collecting shiny items, trinkets, and small figurines, especially those found on the ground. J.M. lived with only his mother who provided training to J.M. for this study. She was 44 at the time of the study and working as a senior project analyst.

I.M. was a 23 year- old male who graduated from a high school a year before the study began and was working to start up his own business. He was diagnosed with autism at age 3 by a licensed psychiatrist. He was able to prepare and pack his lunch for his job, maintain his room at home, take care of his personal hygiene, and change his own clothes. His high school ITP indicated that on the Brigance Employability Skills Inventory (Brigance, 2009), he was measured at a 3rd grade level for reading and writing. He was participating in a transition program at the time of the study with a vocational trainer providing support to him in all environments and received language therapy for 90 min. a week. He could follow three to five step directions with visual and verbal prompting, and could generally follow a task analysis independently until he completed the steps in the entire task analysis; however physically doing things required much more prompting. He often engaged in stereotypy, which included firmly snapping a pen on one of his hands while humming and whining. He participated in a transition curriculum during his program, which included a community- based instruction course to increase his awareness of his community. He was receiving instruction and information on using

public transportation to use to get to and from his job, and acquiring pedestrian safety skills was seen as a priority for his mother.

Setting

This study took place in community settings where pedestrian safety skills were needed. Three specific types of street settings were chosen to train the individuals with autism: (a) roads with no stop signs or pedestrian crosswalks or signalization, (b) roads with stop signs for cars and pedestrian crosswalks, and (c) road with signalized pedestrian crosswalks. Numerous sessions took place on multiple street settings within the categorization of these three roads. To select the target streets where in-situ training would be implemented, the participants' parents and researcher went to different street crossing locations near the participant's residential areas. The selection of the streets was based on the following factors: (a) streets had to be trained in sequential order until participant and parent levels were stable in order to move to next street type, (b) the high frequency or likelihood of using the streets, (c) level of comfort felt amongst requests or suggestions parents made, and (d) crossing the streets required parental monitoring.

Measures

This study measured parent correct implementation of in-situ pedestrian safety skills training and their child's use of pedestrian safety skills. The study also measured procedural integrity and social validity to examine the intervention process and parental satisfaction and acceptability of the intervention process and outcome.

Parent implementation of pedestrian safety skills training. To evaluate parent outcome, the study measured parent correct implementation of pedestrian safety skills

training that used most-to-least prompting procedures. The parent implementation of the intervention was measured as the percentage of correctly implemented steps involved in implementing the most-to-least prompting procedures for each pedestrian safety skill. Data were collected using a checklist across street settings. (See Appendix B for task analyses of steps for each street setting).

Pedestrian safety skills. To measure child outcome of the parent implemented in-situ pedestrian safety skills training, the participant's independent correct use of pedestrian safety skills was measured. Steps (tasks) to crossing the street were developed based on the street type. Safety skills such as stopping at curb, looking left, right, and left, waiting at curb, and crossing the street were targeted. (See Appendix B for sample steps). The use of the pedestrian safety skills was measured based on the level of prompting needed for the participant to perform each of the tasks correctly. It was measured whether the participant independently used each of the task analyzed skills correctly with no prompts (5 points), verbal prompts (4 points), gestural prompts (3 points), partial prompts (2 points), or full physical prompts (1 point). The level of independent use of skills was measured as a percentage of safety skills performed correctly by dividing scores earned by total possible scores.

Procedural integrity. The researcher used an integrity checklist to ensure that the training procedures were delivered consistently across parents. The integrity checklist included 10 steps of the training process that included BST and in-situ feedback. (see Appendix C). To measure integrity, approximately 34% of the training sessions were audio recorded and scored by an independent research assistant. Procedural integrity was

calculated by dividing the number of steps delivered correctly by the number of steps and multiplying by 100. The procedural integrity was scored at 100% across parents indicating that all BST training and in-situ feedback procedures were correctly delivered in each session and trial. IOA for procedural integrity, which was measured using a point-by-point method (item by item), was 100% for parents across sessions.

Social validity. Parents were asked to fill out a social validity questionnaire, an adapted version of the Treatment and Acceptability Rating Form- Revised (TARF- R; Reimers & Wacker, 1988) during follow- up. (see Appendix D). The questionnaire used a five point Likert- type scale to rate effectiveness and acceptability of the intervention from 1 to 5 using 15 items, with counterbalanced questions (i.e. for some questions, 1 indicates acceptability and 5 indicated an unacceptable score).

Results in Table 1 show a mean score of 89.5% (86-93%) satisfaction across two parents. The lowest rating was a score of 2 and the highest rating was a score of 5. The lowest rating score of 2 was from A.L.'s parent who rated his child's generalization to novel settings as poor.

Data Collection and Interobserver Agreement

All in-situ trials that occurred on street settings were video-recorded, with the exception of generalization probes, and later scored by the researcher and an independent data collector, a research assistant in an ABA master's program. The video camera was positioned using a tri-pod in a location that could capture the entire trial being performed (from sidewalk to sidewalk or from curb to curb). The positions were selected for maximum visibility of participants and to minimize the obtrusiveness of the observation

process. In addition, each trial was audio recorded on a phone by the researcher who acted as the safety confederate to monitor any apparent danger to the parent, child, or both. The researcher was close enough to the participants to audio record the trials. Each in-situ trial varied in length depending on the family. It took approximately one min. on the 1st and 2nd street types and 1-3 min. on the 3rd street type depending on how long the pedestrian light required to change to walk. Data were collected one to three times per week, depending on availability, for about a month and a half for each participant.

Interobserver agreement (IOA) was assessed by two observers (researcher and data collector) during at least 35% of the sessions across phases and participants, which was measured by having the data collector independently watch the video-recorded trials and sessions. Point- by- point procedure was used and agreements were calculated by dividing the number of agreements by the number of agreements plus disagreements, multiplied by 100 to yield percentage. A research assistant (data collector) from an ABA master's program was trained using video clips until 90% agreement was reached. Video clips consisted of participants who had previously dropped out of the study for various reasons. The researcher watched the video with research assistants to train them to record and score each sample step. The mean IOA scores across streets and phases for each participant was 92% (80-100%) for A.L., 94% (86-100%) for J.M., and 92% (80-100%) for I.M. Table 1 displays details on IOAs across participants in each experimental phase.

Table 1. *Mean percentages of Interobserver Agreement*

Phases		A.L.	J.M.	I.M.
Baseline	**Street 1**	85% (80-90%)	94% (87-100%)	86% (80-91%)
	Street 2	91% (91-91%)	93% (86-100%)	100%
	Street 3	94% (87-100%)	98% (91-91%)	91% (90-92%)
Intervention	**Street 1**	86% (86-86%)	94% (93-95%)	97% (93-100%)
	Street 2	93% (93-93%)	93% (86-100%)	92% (91-93%)
	Street 3	89% (86-91%)	97% (94-100%)	87% (82-92%)
Fading	**Street 1**	93% (86-100%)	90% (90-90%)	94.5% (91-98%)
	Street 2	91% (90-92%)	98% (98- 98%)	99% (98-100%)
	Street 3	92% (92-92%)	94% (87-100%)	95% (95-95%)
Mean		92% (80-100%)	94% (86-100%)	92% (80-100%)

Experimental Design and Procedures

Recruitment. The behavior analysts' email addresses were obtained from the Applied Behavior Analysis Master's Program and the program student practicum sites in the community. An email was sent to local analysts describing the study and requesting that they give the researcher's contact information to any families whose child could possibly benefit from this study. Once the researcher was contacted, an interview was arranged at the parents and child's convenience to assess their qualification to this study. The purpose and conditions of this study were explained to the family and any questions were answered. Parental consent and participant assent were requested and obtained if

willing. The interview was also conducted using a questionnaire (see Appendix A) to obtain information regarding the child's educational level, receptive communication skill level, and previous pedestrian training experience as well as prior parental involvement in implementing behavioral intervention procedures or training their child, any problem behaviors that might have interfered with the intervention procedures or pose as a danger to themselves or others, and any other background information that is relevant to this study.

Baseline. This phase involved taking participants to a street crossing location and recording the use of prompting procedures by parents to train their children to use pedestrian safety skills and the safety skill performance by children. In this phase, parents were asked to engage in interactions with their children on the target crosswalks of community streets. The researcher joined the activities and maintained close proximity to the participants but did not provide training and feedback support. The researcher did not provide parents training on how to use the most-to-least prompting procedures nor feedback that was used in intervention. Baseline data began at the same time for all family participants. Each observation session was scheduled at a time and date convenient for the family. At minimum, four data points were collected for each type of street.

Intervention. The in-situ pedestrian skills training intervention was implemented by parents in the community. The parents were trained in the use of most-to-least prompting procedures to teach their children pedestrian safety skills.

Parent training. Parents participated in 10-15 min individual BST training sessions, which occurred in their home each day prior to the parent and their child accompanying the researcher to the training sites in the community. During training sessions, the researcher used instruction, modeling, rehearsal, and feedback procedures to help the parents learn how to implement the most-to-least prompting procedures. After instruction, the researcher modeled the use of most-to-least procedures in a role- play context. The researcher then had the parent rehearse the procedures using the researcher as their child. Praise was provided for correctly performed behaviors and corrective feedback was provided for incorrectly performed behaviors. The parents were trained to use the following steps in most-to-least prompting procedures during each intervention session to teach pedestrian safety skills to their children in a street setting:

1. *Full physical prompt*: Physically assist child to perform a task or step using one or both hands and using force (pushing or pulling) while providing verbal directions (e.g., placing one hand on the child's back while pushing him towards the button and placing another hand on the child's hand while pushing/ pulling hand toward button while providing instruction, "push the button."). Praise for completion of the task or skill with prompt
2. *Partial physical prompt:* Partially assist child by lightly placing, touching, or shadowing a part of body with one or both hands to prompt to perform task or skill, or be ready to move into full physical prompting (e.g., lightly touching the child's elbow with the direction, "push the button." Praise for completion

of task or use of higher prompt level that was last successful in having the child complete step for an incorrect or no response

3. *Gestural prompt*: Point to an object or direction and verbally direct child to perform the task; praise for completion of task or use of higher prompt level that was last successful in having the child complete step for an incorrect or no response
4. *Verbal prompt:* Provide verbal direction without physical or gestural prompt; praise for completing the task independently or use of higher prompt level that was last successful in having the child complete step for an incorrect or no response.
5. *No prompt:* Probing/ allowing child to attempt independent engagement in the task; praise for completing the task independently or use of higher prompt lvel that was last successful in having the child complete the step for an incorrect or no response

During training, it was explained to the parents that each trial in the street would include a full run through of each step in the task analysis of pedestrian safety skills for each street setting type.

Implementation. Following each parent training, parent implementation of in-situ pedestrian skills training began with using the full physical prompts in the first two training trials for each step in the task analysis in each street. Subsequent trials involved moving down through the levels of prompting depending on the child's behavior and using higher prompt levels when engagement in the correct behavior did not occur.

During the first two in-situ training trials, the parent provided the most-to-least prompt hierarchy with no delay following the verbal direction or between each prompt in the hierarchy to facilitate high rates of correct responding. In the subsequent trials, the parent followed the same procedure, but used a 3-s. response interval following the verbal direction and also between each prompt in hierarchy. If the child engaged in the target response independently within the 3-s. response interval, praise was provided. If the child did not engage in the target response with the 3-s. response interval, the parent provided the next higher level of assistance in the prompting hierarchy. The parent provided verbal praise (e.g., "good") when the child engaged in the prompted behavior. However, for skills performed correctly, the parent provided specific verbal compliments with higher inflection and greater enthusiasm than for prompted behaviors (e.g., "Awesome! That was great how you pushed the button all by yourself! You are so smart!").

After the first two trials, the parent and researcher collaboratively decided the level of prompting before beginning a new trial. If the parent was having trouble in implementing the procedures, the researcher gave verbal corrective feedback at the end of the trial. If the parent implemented the prompting procedures below 80% accuracy, the researcher provided in-situ feedback.

Fading. When parental implementation of the training procedures reached 80% accuracy in each type of street for three consecutive trials, BST was removed. If parents made a mistake in providing systematic prompts correctly in any prompt in hierarchy, the researcher provided verbal corrective feedback at the end of the trial.

Generalization and Follow-up. To examine the parents' implementation of in-situ pedestrian skills training using the prompting procedures in novel street settings, where no BST or feedback was provided, and to examine its collateral effects on child use of pedestrian safety skills, probe data on parental implementation of intervention and participant response were collected across baseline and intervention phases. The second and third street served as generalization settings before introducing interventions as the intervention was implemented for the first and the second street, respectively.

Two weeks following the intervention, data were collected for a period of 2 weeks to determine if the child participants' levels of independent correct use of the safety skills were maintained. The procedures used during maintenance sessions were similar to those of baseline conditions with the exception that the parents were present but simply acted as chaperone to intervene if their child was in danger.

Results

Parent Implementation of Pedestrian Safety Skills Training

Figure 1 presents the percentage of treatment steps implemented correctly by the parents to teach their children pedestrian safety skills in the community during each phase of the experiment. Measurement of parent implementation of the training procedures, which included systematic most-to-least prompting procedures, showed that all parents successfully implemented the training procedures with high levels of accuracy across streets in intervention and fading phases. As shown in Figure 1, levels of correct implementation of the steps were very low across streets in baseline. The percentage of correct implementation was at 0%-2.5% for the parents of A.L. and J.M. and 2%-3% for the parent of I. M. across streets. However, during intervention when BST was provided, the parents implemented the intervention procedures with over 80% accuracy in all sessions across streets, except during the second training trial in Street 3 for A.L.'s parent and the third training trial in Street 1 for I.M.'s parent. Once they received in-situ feedback, their levels of correct implementation increased to over 90% or 100%. During intervention, the mean percentage of correct implementation of the training procedures was 94% (80-100%) in Street 1, 95% (80-100%) in Street 2, and 92% (50-100%) in Street 3 for A.L.'s parent. The mean percentage of correct implementation was 91% in Street 1, 96% in Street 2, and 92% in Street 3 for J.M.'s parent. The mean percentage of

correct implementation was 98% in Street 1, 99% in Street 2, and 97% in Street 3 for I.M.'s parent.

As shown in Figure 1, during fading of BST when only verbal feedback was provided at the end of each trial, parents correct implementation of the intervention procedures remained at high levels, averaging over 90% (80-100%) across streets for all parents. I.M.'s parent consistently implemented the procedures with over 98% or 100% accuracy in all streets. No in- situ feedback was required for any of the parents during the fading phases in any of the street types.

Generalization of Parent Implementation

Figure 1 also displays parents' implementation of intervention during generalization probes. The data indicated that their correct implementation improved at some levels, but not significantly for any parents. A.L.'s parent performed at an average of 10% (0-30%) and 7% (0-30%) of accuracy during generalization probes for Streets 2 and 3, respectively, in intervention, compared to 3% and 0%, respectively, in baseline. J.M.'s parent performed at an average of 20% (15-30%) and 13% (0-30%) accuracy during generalization probes for Streets 2 and 3, respectively, compared to 2% across the two streets in baseline. I.M.'s parent performed at an average of 20% (20-40%) and 2% (0-10%) during generalization probes for Street 2 and 3, respectively, compared to 2% and 0% in baseline.

Pedestrian Safety Skills

Figure 2 shows the results of pedestrian safety skills performed by the participants in response to parent implementation of in-situ pedestrian skills training in three different

street types. Results are organized to display the percentage of independent, correct use of pedestrian safety skills across experimental conditions and three streets for each participant. A.L., J.M., and I.M. showed, respectively, stable patterns in baseline at 33% (33-33%), 44% (33-50%), and 57% (25-80%) mean independent, correct use of pedestrian safety skills in Street 1.

Visual inspection of the intervention data revealed that there was a substantial increase in the slope and level of all three participants' independent, correct use of safety skills in Street 1. Intervention data reflected an average of 74% (46-90%), 89% (60-100%), and 81% (55-96%) for A.L., J.M., and I.M., respectively. During fading in Street 1, in which BST for parents was removed, the participant's levels of independent, correct use of safety skills continued to increase. There was a substantial increase in the slope and level of all three participants behavior. The mean independent correct use of skills was 84% (71-90%), 98% (96-100%), and 86% (75-96%) for A.L., J.M., and I.M., respectively, during this phase in Street 1.

The same patterns were observed in Streets 2 and 3; A.L.'s independent use of safety skills increased to an average of 67% (24-89%) and 72% (56-80%) in intervention from 37% (33-50%) and 27% (25-33%) in baseline in Streets 2 and 3, respectively. J.M.'s pedestrian safety skills improved to an average of 86% (58-100%) and 85% (62-98%) in intervention from 43% (33-50%) and 45% (42%- 50%) in Streets 2 and 3, respectively. I.M.'s safety skills improved to an average 83% (60-96%) and 85% (60-97%) from 61% (50-87%) and 61% (50-80%) in Street 2 and Street 3 during baseline.

During fading of BST for parents, except for one session in Street 2 for A.L. and in Street 3 for J.M., the levels of independent correct use of skills remained stable at high levels.

Generalization and Maintenance of Pedestrian Safety Skills

Figure 2 also displays participant use of safety skills during generalization probes. Data during the probes reflected a limited generalization of the skills to untrained street settings. The levels of participant independent, correct use of skills were similar to those of baseline, with A.L. performing safety skills at an average of 36% (33-45%) for Street 2 compared to 37% (33-50%) in baseline, and performing at an average of 24% (13-33%) in Street 3 compared to 27% (25-33%) in baseline. J.M. had slight generalization of skills, performing skills at an average of 61% (42-100%) for Street 2 compared to 43% (33-50%) in baseline. However, these skills did not seem to generalize to Street3, performing at 37% (33-42%) compared to an average of 45% (42-50%) in baseline. I.M. showed slight generalization to Street 2, performing at an average of 69% (60-90%) in generalization probes compared to baseline 61% (50-87%). These skills did not seem to generalize for Street 3, with I.M. performing at an average of 52% (27-71%) during generalization probes compared to 61% (50-80%) in baseline.

Two weeks following the intervention, data were collected for J.M. across two sessions for a period of one week. It was found that J.M.'s levels of independent correct use of the safety skills maintained during follow-up. The procedures used during maintenance sessions were similar to those of baseline conditions with the exception that the parents were present but simply acted as chaperone to intervene if their child was in danger.

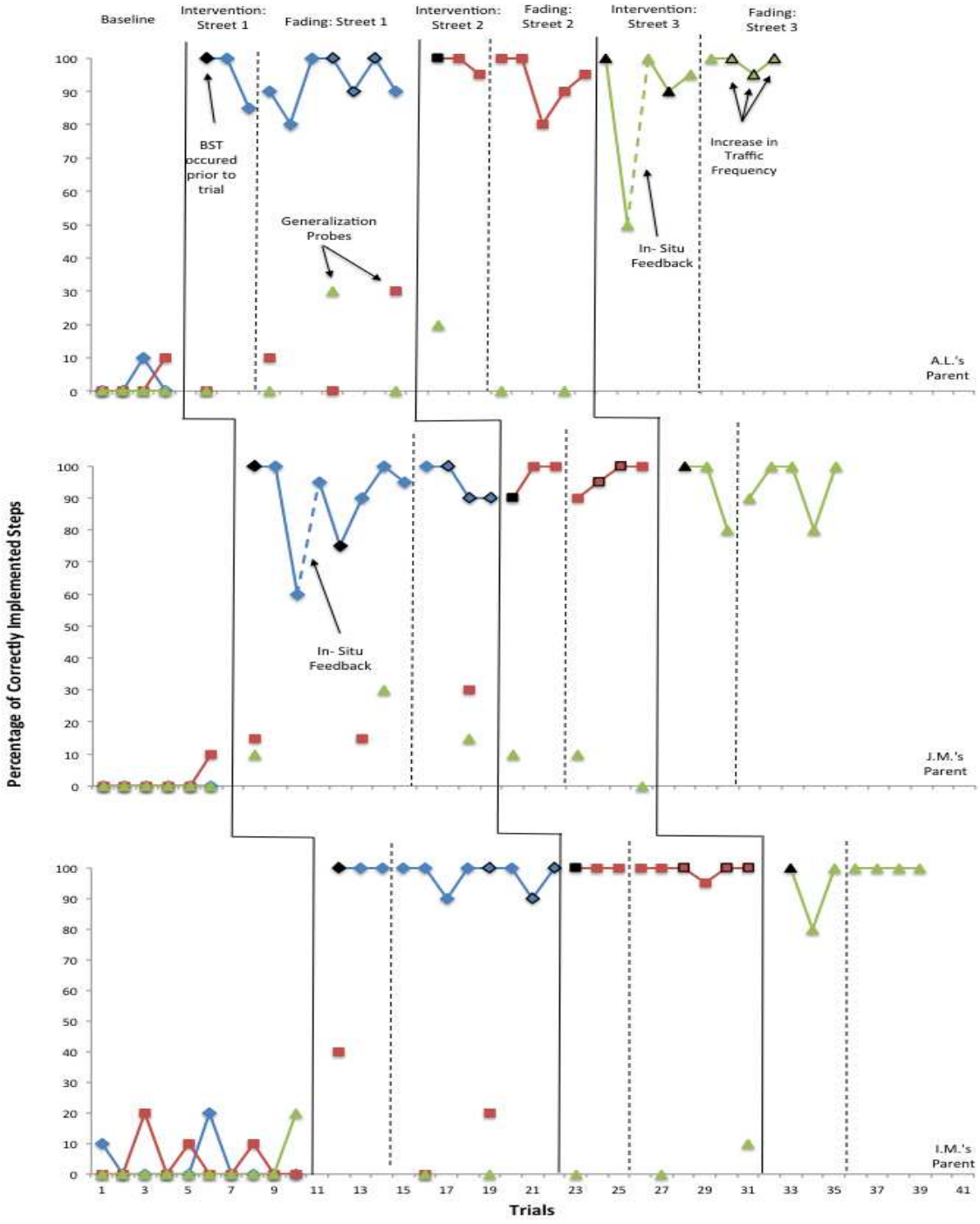

Figure 1. Percentage of correct implementation of in-situ pedestrian safety skills training across parents.

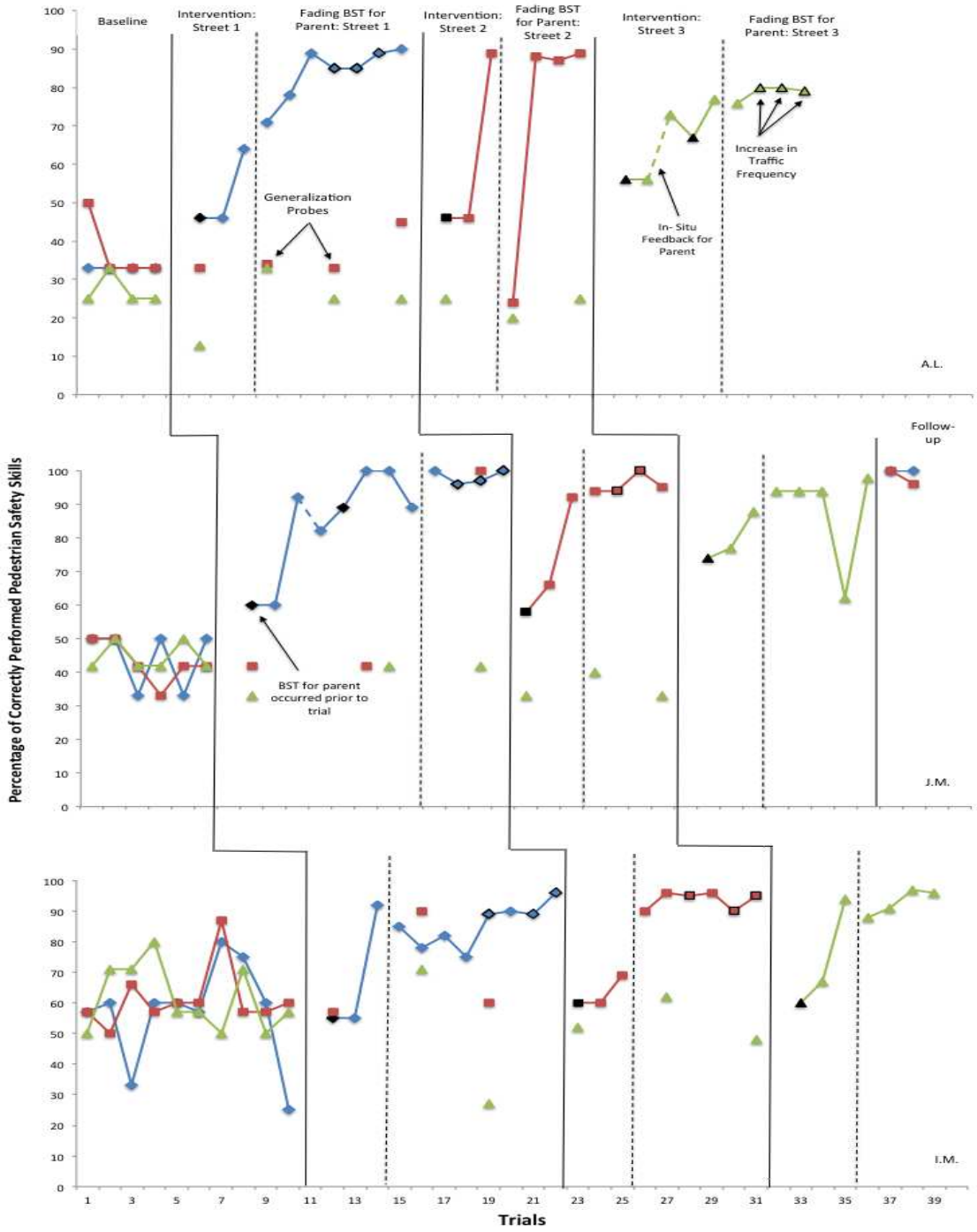

Figure 2. Percentage of independently performed correct safety skills across participants in each experimental phase.

Discussion

Results from this study support the potential efficacy of a parent implemented in-situ pedestrian safety skills training for individuals with ASDs. The results indicated that BST training was successful for helping parents accurately implement the in-situ pedestrian safety skills intervention that employed most-to-least prompting procedures. Furthermore, the parents implemented the in-situ safety skills intervention during fading when BST was not provided. However, parental generalization of the intervention implementation to Streets 2 and 3 was minimal during observation probes that occurred before the implementation of BST. Results also indicated that in-situ pedestrian safety skills training had positive effects on individuals with autism both during and after intervention. Although there was a limited generalization of the skills to untrained street settings, it was found that the skills learned during intervention were maintained across streets for all participating individuals with autism.

The current study supports previous research that examined the effects of training parents, using BST procedures, to implement street safety training to children (Phillips & Todman, 1999; Rivara et al., 1991; Rothengatter, 1984). The BST procedures used in the current study included instruction, modeling, rehearsal, and feedback, which were found to be effective in enhancing correct parental implementation of the systematic prompting procedures to teach their children pedestrian safety skills.

With regard to limited generalization of parent implementation of in-situ safety skills training, it should be noted that Street types 2 and 3 are regarded more dangerous due to their placement in higher- volume traffic areas compared to Street 1 (Zeeger et al., 2005), where trials generally took place in residential neighborhoods with little to no traffic. Therefore, parents may have felt less confident in their child's ability to engage in the appropriate steps, resulting in higher prompt levels and parents often performing the steps for their child. As shown in data, the largest generalization was observed with the parents of J.M and I.M. for Street type 2, who implemented the steps of systematic prompting procedures with higher levels of accuracy than in Street type 3, which required more steps to implement the training procedures. The results indicate that generalization promotion support may be needed in order to facilitate parents' successful implementation of intervention during non-trained settings (Lucyshyn et al., 2007; Sears, Blair, Iovannone, & Crosland, 2013).

Another factor that may have contributed to limited parent implementation performance during generalization probes and high parent performance levels during intervention sessions may have been due to reactivity, as shown in previous research (Basset & Blanchard, 1977; Brackett, Reid, & Green, 2007; Mowery, Miltenberger, Weil, 2010). Because all other intervention sessions involved the use of a video camera in order to measure parent implementation of intervention procedures, parent performance may have been directly reflected by reactivity to being monitored by a video camera. Parent implementation performance was not video recorded during generalization probes and parents were unaware that the researcher was measuring their performance, which may

have caused a decrease in performance levels during probes. This finding suggests that parent reactivity may have occurred to the presence of a video camera resulting high performance levels during intervention and low performance levels during generalization probes.

Results of this investigation suggest that the pedestrian safety skills training implemented by parents was successful in teaching the participating two adolescents and one adult with autism to use safety skills to cross streets. The results indicate that the in-situ training may be successful to increase independent use of safety skills not only for high functioning individuals with autism, but also for low functioning individuals with autism as in the case of A.L. This finding adds to the relatively sparse data providing support for the outcomes of pedestrian safety skills training involving the use of in-situ training procedures for individuals with developmental disabilities (Batu et al., 2004), including autism (Neilson & Bowes, 1994).

Furthermore, the finding supports existing research that incorporates systematic most-to-least prompting procedures to teach pedestrian-safety skills to individuals with autism and other disabilities (Batu et al., 2004; Collozi & Pollow, 1984; Kayser, Billingsley, & Neel, 1986; McDonnell & Ferguson, 1988). As indicated by Batu et al. (2004), using most-to-least prompting could be a viable intervention method when teaching pedestrian safety skills in natural street environments to prevent the occurrence of errors, especially with the initial introduction of an intervention. It may be inferred that the decreased number of errors associated with using most-to-least prompting procedures may allow for a safer in-situ pedestrian safety skills training.

Similar to data on parent generalization of intervention implementation to non-trained street settings, there was a limited generalization of the skills to non-trained streets among participants. This may be due to, in part, the current study only using social positive reinforcement in the form of praise to increase the participants' skills. Batu et al. (2004) successfully trained children with developmental disabilities ages 7-15 using a most-to- least prompting procedure to use street safety skills. The intervention was very successful for the children to acquire, maintain, and generalize their skills to new settings. One major reason for such success that differs from the current study may be the authors use of specific reinforcers, tangible reinforcers, and tangible reinforcers with greater reinforcement values for independently performed skills, indicating that the use of individually selected reinforcers based on preference would enhance the outcome of the pedestrian safety skills training.

One limitation of the current study was that to account for safety precautions, most trials took place on relatively calm streets. However, during fading, all three parents were very involved and active in the study, and requested or suggested going to street settings where there were likely to be more cars. As shown with A.L. and his parent (see Figure 1), the parent implemented the intervention procedures with high levels of accuracy, which led to further increases in A.L's independent use of safety skills.

Another limitation is that this study involved only three families and thus the results should be interpreted with caution. A third limitation of the study is the relatively short amount of time participants were involved in this study. Future research should examine the maintenance and generalization effects of the in-situ pedestrian safety skills

in longer treatment durations (Anderson & Romanczyk, 1999). The study collected only 2-week follow-up data; thus, it may be difficult to determine whether the in-situ pedestrian safety skills training can promote maintenance of skill acquisition after the intervention has been terminated for individuals with autism.

Despite its limitations, this study offers a significant contribution to the literature on in-situ pedestrian safety skills training for individuals with autism. This study is one of the few studies that implemented the in-situ pedestrian safety skills training for individuals with autism. This study is also the first study that involved parents in implementing in-situ pedestrian safety skills training as interventionist for individuals with autism.

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Appendix A

Participant Information Questionnaire

Participant ID # :_____ Today's Date: _____

Child's Age: __ __ (yrs) __ __ (mos) Child's Disability: _____

Ethnicity: □ Caucasian (1) □ African-American (2) □ Latino (3) □ Asian/Pacific Islander (4) □ Native American (5) □ Mixed (6), □ Other (7), please describe:_____

Parents:

Mother: Age: _____ Occupation:_____

Father: Age: _____ Occupation:_____

Child's siblings (list ages):

Current School: □ Public (1) □ Private (2) □ Home Studies (3) □ Not in School (4) □ Other (5)

Grade:_____

Has child ever attended resource, remedial, or special classes in the past? □ No (0) □ Yes (1)

If yes,
describe:_____

Treatment History:

Has your child ever received the following treatment?

□ Therapy + other □ Medication + other □ Medication + Therapy □ Medication □ Therapy □ Other _____ □ None

Appendix A (Continued)

Medication History:

Please provide information about all medications that your child is currently taking:

Current Medications	**Date started (mo/yr)**	**Current Dose**

Has your child received any type of pedestrian street safety lessons/ training/ interventions in the past? □ Yes □ No

If so, please specify:

_____

_____

_____

Does your child currently engage in any behaviors that you feel may put themselves or others in danger while doing a pedestrian street safety training in actual street settings? □ Yes □ No

If so, please specify:

_____

_____

Do you feel competent in your ability to control your child in a street setting? □ Yes □ No

If not, please specify:

_____

Are you willing to commit a certain amount of time each week with your child to accompany the researcher in various different street settings to train your child? □ Yes □ No

Appendix A (Continued)

Do you/ your spouse, or whoever is planning on participating in this study, other than your child, have a diagnosed cognitive impairment (intellectual or developmental disability)?

□ Yes □ No

If yes, please specify the diagnoses:

Does your child have any secondary diagnoses other than autism?

□ Yes □ No

If yes, please specify the diagnoses:

Appendix B

Data Sheet: Street 1 (Street with no Crosswalk, Stop Signs, or Pedestrian Indications)						
	1. Stops at curb	2. Looks left, right, left	3. Waits at curb until no cars or coming or traffic is stopped (if no cars are coming or traffic is stopped, move to step #4)	4. Begin crossing street within 5 seconds	5. Cross in straight line to other side	
Trial Subject: Video code:	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt* **Was prompt implemented correctly?** Y N NA	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt* **Was prompt implemented correctly?** Y N NA	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt* **Was prompt implemented correctly?** Y N NA	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt* **Was prompt implemented correctly?** Y N NA	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt* **Was prompt implemented correctly?** Y N NA	C: ______
	Did the child complete the step correctly? Y N NA **Did the child complete the step independently?** Y N NA	**Did the child complete the step correctly?** Y N NA **Did the child complete the step independently?** Y N NA	**Did the child complete the step correctly?** Y N NA **Did the child complete the step independently?** Y N NA	**Did the child complete the step correctly?** Y N NA **Did the child complete the step independently?** Y N NA	**Did the child complete the step correctly?** Y N NA **Did the child complete the step independently?** Y N NA	C: ______
	If not, did parent implement a higher prompt level? Y N NA What level?_______	**If not, did parent implement a higher prompt level?** Y N NA What level?_______	**If not, did parent implement a higher prompt level?** Y N NA What level?_______	**If not, did parent implement a higher prompt level?** Y N NA What level?_______	**If not, did parent implement a higher prompt level?** Y N NA What level?_______	P: ______
	Did the child complete the step correctly with this prompt? Y N NA	**Did the child complete the step correctly with this prompt?** Y N NA	**Did the child complete the step correctly with this prompt?** Y N NA	**Did the child complete the step correctly with this prompt?** Y N NA	**Did the child complete the step correctly with this prompt?** Y N NA	C: ______ P: ______

Appendix B (Continued)

	If not, did parent implement an even higher prompt level? Y N NA What level? _____ *Notes:*	**If not, did parent implement an even higher prompt level?** Y N NA What level? _____ *Notes:*	**If not, did parent implement an even higher prompt level?** Y N NA What level? _____ *Notes:*	**If not, did parent implement an even higher prompt level?** Y N NA What level? _____ *Notes:*	**If not, did parent implement an even higher prompt level?** Y N NA What level? _____ *Notes:*	

Data Sheet: Street 2 (Pedestrian Crosswalk with Stop Signs for Cars)						
	1. Locates crosswalk and stops at curb	2. Looks left, right, left	3. Waits at curb until no cars or coming or traffic is stopped (if no cars are coming or traffic is stopped, move to step #4)	4. Begin crossing street within 5 seconds	5. Cross on crosswalk to other side	
Trial Subject:	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt*	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt*	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt*	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt*	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt*	C: _____
Video code:	**Did the child complete the step correctly?** Y N NA **Did the child complete the step independently?** Y N NA	**Did the child complete the step correctly?** Y N NA **Did the child complete the step independently?** Y N NA	**Did the child complete the step correctly?** Y N NA **Did the child complete the step independently?** Y N NA	**Did the child complete the step correctly?** Y N NA **Did the child complete the step independently?** Y N NA	**Did the child complete the step correctly?** Y N NA **Did the child complete the step independently?** Y N NA	C: ____

Appendix B (Continued)

	If not, did parent implement a higher prompt level? Y N NA What level?_____	**If not, did parent implement a higher prompt level?** Y N NA What level?_____	**If not, did parent implement a higher prompt level?** Y N NA What level?_____	**If not, did parent implement a higher prompt level?** Y N NA What level?_____	**If not, did parent implement a higher prompt level?** Y N NA What level?_____	
	Did the child complete the step correctly with this prompt? Y N NA	**Did the child complete the step correctly with this prompt?** Y N NA	**Did the child complete the step correctly with this prompt?** Y N NA	**Did the child complete the step correctly with this prompt?** Y N NA	**Did the child complete the step correctly with this prompt?** Y N NA	
	If not, did parent implement an even higher prompt level? Y N NA What level? _____ *Notes:*	**If not, did parent implement an even higher prompt level?** Y N NA What level? _____ *Notes:*	**If not, did parent implement an even higher prompt level?** Y N NA What level? _____ *Notes:*	**If not, did parent implement an even higher prompt level?** Y N NA What level? _____ *Notes:*	**If not, did parent implement an even higher prompt level?** Y N NA What level? _____ *Notes:*	

Appendix B (Continued)

Data Sheet: Street 3 (Signalized Pedestrian Crosswalk)						
	1. Locates signalized crosswalk and stops at curb	2. Looks at sign on other side of street to determine walk or don't walk	3. If sign says don't walk, locate button and push	3.b. Wait for sign at other side of street to indicate "walk"	5. Cross on crosswalk to other side	
Trial Subject: Video code:	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt*	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt*	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt*	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt*	**Prompt level used:** *Full physical* *Partial physical* *Gestural* *Verbal* *No prompt*	C: _____
	Did the child complete the step correctly? Y N NA **Did the child complete the step independently?** Y N NA	**Did the child complete the step correctly?** Y N NA **Did the child complete the step independently?** Y N NA	**Did the child complete the step correctly?** Y N NA **Did the child complete the step independently?** Y N NA	**Did the child complete the step correctly?** Y N NA **Did the child complete the step independently?** Y N NA	**Did the child complete the step correctly?** Y N NA **Did the child complete the step independently?** Y N NA	
	If not, did parent implement a higher prompt level? Y N NA What level?_____	**If not, did parent implement a higher prompt level?** Y N NA What level?_____	**If not, did parent implement a higher prompt level?** Y N NA What level?_____	**If not, did parent implement a higher prompt level?** Y N NA What level?_____	**If not, did parent implement a higher prompt level?** Y N NA What level?_____	C: _____
	Did the child complete the step correctly with this prompt? Y N NA	**Did the child complete the step correctly with this prompt?** Y N NA	**Did the child complete the step correctly with this prompt?** Y N NA	**Did the child complete the step correctly with this prompt?** Y N NA	**Did the child complete the step correctly with this prompt?** Y N NA	P: _____ C: _____ P: ____

Appendix B (Continued)

	If not, did parent implement an even higher prompt level? Y N NA What level? _____ *Notes:*	**If not, did parent implement an even higher prompt level?** Y N NA What level? _____ *Notes:*	**If not, did parent implement an even higher prompt level?** Y N NA What level? _____ *Notes:*	**If not, did parent implement an even higher prompt level?** Y N NA What level? _____ *Notes:*	**If not, did parent implement an even higher prompt level?** Y N NA What level? _____ *Notes:*	

Circle the appropriate response. A "No" will be circled if the parent did not implement or missed each step. A "Yes" will be circled if the parent implemented each step correctly following guidelines.

***Full physical prompt**: using both or one hand to fully physically guide the child through the entire task*
***Partial physical prompt**: using one hand to lightly touch but not forcefully move the child to prompt movement of a specific body part*
***Modeling**: having the child attend to them as they model specific movements that result in task completion*
***Gestural prompt**: pointing or gesturing with an open hand towards an object that is involved in completing a task or a direction that the child needs to move in in order to complete a task*
***Verbal prompt**: only using the instructions part of prompting to explain what the parent wants to be done in order to complete a task*

Appendix C

Procedural Integrity Checklist

Meeting Number: Date: ___

Tasks		Adherence- Was it implemented?	Quality- How well was it implemented? 1= poor; 4= well	Integrity Score Y = 1 + 1, 2, 3, or 4 N = 0
BST	1. Discussed last two trials from previous session to determine prompt levels that will be used in the first two trials for that day	Yes No	1 2 3 4	
	2. Described/ gave instructions of most-to-least prompting procedure and the readjusted prompt to be used for each step involved in each task analysis	Yes No	1 2 3 4	
	3. Modeled implementation of most-to-least procedures and the readjusted prompt to be used for each step involved in each task analysis	Yes No	1 2 3 4	

Appendix C (Continued)

	4. Engaged in rehearsal of most-to-least prompting procedures and the readjusted prompt to be used for each step by giving different verbal or physical situations in which the parent was to respond. Feedback provided for incorrect responses and reinforcement provided for correct. Ensure parent can respond to each situation correctly 100% of the time before moving on to step # 5	Yes No	1 2 3 4	
	5. Reviewed that if probe for decreased prompt level is not successful in having their child complete a step, they should use the level of prompting that was last successful in having their child complete that step. If this still does not work, the parent will be reminded to move into full physical prompting	Yes No	1 2 3 4	

	Total Integrity	_____ %	_____%	
In- situ Feedback/ Debriefing	1. Observe implementation of decided prompt levels by parent and make note of any correctly or incorrectly performed steps while monitoring safety	Yes No	1 2 3 4	
	2. After each trial, provide specific praise for correct implementation of readjusted prompts and corrective feedback for incorrect implementation of adjusted prompt levels.	Yes No	1 2 3 4	
	3. After two trials, researcher asks parent about prompt levels implemented for each step and whether the parent feels that it should be increased/ decreased for each step in the task analysis while recording the decided readjustment of prompt levels	Yes No	1 2 3 4	
	Total Implementation Scores (Integrity)	_____ %	_____%	_____ __%

Appendix D

Social Validity Rating Scale-Family Form

Please score each item by circling the number that best indicates how you feel about the most- to- least prompting intervention.

1. Given the level of previous pedestrian safety knowledge your child had, how acceptable did you find the most-to-least prompting intervention?

1	2	3	4	5
Not at all acceptable		Neutral		Very acceptable

2. How willing were you to carry out the most-to-least prompting procedures?

1	2	3	4	5
Not at all willing		Neutral		Very willing

3. To what extent do you think there might have been disadvantages in the most-to-least prompting intervention?

1	2	3	4	5
None likely		Neutral		Many likely

4. How much time was needed each day for you to carry out the most-to-least prompting intervention?

1	2	3	4	5
Little time		Neutral		Much time

5. How confident were you that the most-to-least procedures would be effective for your child?

1	2	3	4	5
Not at all confident		Neutral		Very confident

Appendix D (Continued)

6. Did the most-to-least procedures improve your child's pedestrian safety skills?

1	2	3	4	5
Unlikely		Neutral		Very likely

7. How difficult was it to carry out the most-to-least prompting procedures?

1	2	3	4	5
Very difficult		Neutral		Not difficult

8. How much did you like the most-to-least prompting procedures?

1	2	3	4	5
Do not like them at all		Neutral		Like them very much

9. Do you feel that your child is more cautious when crossing streets after the intervention?

1	2	3	4	5
Not at all cautious		Neutral		Very cautious

10. Did you notice a greater number of times that your child did the correct skills on their own throughout the study?

1	2	3	4	5
Did not notice greater number of times my child did correct skills on their own		Neutral		Did notice greater number of times my child did correct skills on their own

Appendix D (Continued)

11. I felt that the researcher provided me with adequate training.

1	2	3	4	5
Strongly disagree		Neutral		Strongly agree

12. The researcher provided adequate instructions during BST trainings about most-to-least prompting procedures and answered any questions I had.

1	2	3	4	5
Strongly disagree		Neutral		Strongly agree

13. The researcher modeled the most-to-least prompting procedures for me during BST trainings.

1	2	3	4	5
Strongly disagree		Neutral		Strongly agree

14. The researcher physically rehearsed the most-to-least prompting procedures with me during BST trainings and told me when I was doing the correct thing and told me when I was doing something incorrectly.

1	2	3	4	5
Strongly disagree		Neutral		Strongly agree

15. Did you feel confident training your child using most-to-least prompting procedures?

1	2	3	4	5
Not at all Confident		Neutral		Very confident

16. How likely do you feel that most-to-least prompting procedures could be used to teach your child other skills?

1	2	3	4	5
Not likely		Neutral		Very likely

Appendix D (Continued)

17. Did you feel that your child was able to generalize pedestrian safety skills to streets that they had never used or been trained on before?

1	2	3	4	5
Not at all		Neutral		Every time

18. Did you feel comfortable training your child on actual street settings?

1	2	3	4	5
Very uncomfortable		Neutral		Very comfortable

19. Was there ever a point that you thought you or your child's life was in danger because you were using real streets?

1	2	3	4	5
I felt danger for my child's or my life		Neutral		I did not feel my child's or mine was in danger

20. Do you think your child enjoyed the training?

1	2	3	4	5
Strongly disagree		Neutral		Strongly Agree

21. Will you continue to use most-to-least prompting procedures to help your child learn to use their new skills in even more street settings?

1	2	3	4	5
Not likely		Neutral		Very likely

22. Did you like that you were able to adjust the prompt levels based on your own opinion?

1	2	3	4	5
Not at all		Neutral		Very much

23. Did the presence of a safety confederate make you feel more comfortable/ safe?

1	2	3	4	5
Not at all		Neutral		Very much

Appendix D (Continued)

24. How many times did the safety confederate have to help you or your child so that you were not in danger?

1	2	3	4	5
Never		2-3 times		More than 5 times