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Evaluating Behavioral Skills Training and In-Situ Training to Teach Greeting Skills to Adults with Developmental Disabilities

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Evaluating Behavioral Skills Training and In-Situ Training to Teach Greeting
Skills to Adults with Developmental Disabilities

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts
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Behavioral Skills Training and In-Situ Training to Teach Greeting Skills to Adults
with Developmental Disabilities

Shannan Smith

ABSTRACT

Previous research has demonstrated that behavioral skills training (BST) is
effective in teaching social skills to individuals with developmental disabilities, but
often the skills fail to generalize. One strategy to promote generalization has
been the use of in situ training. In an effort to improve upon previous research
BST plus in situ training was evaluated to teach greeting skills to adults living in a
group home setting. The percentage of correct greeting responses was
evaluated in a multiple baseline across participants design. Results showed that
BST was only partially effective in teaching greeting skills to the participants.
However, In-situ training resulted in a greater increase in correct greeting skills
across all participants.

Introduction

Research has established that improving social skills exhibited by individuals with developmental disabilities is important for improving quality of life, community inclusion, and normalization (Newton, Olsen, Horner, & Arid, 1996; Trompenaars, Mastoff, Van Heck, De Vries, & Hodiamont, 2007; Whang, Fawcett, & Mathews, 1984). Developmental disabilities are diagnosed by level of physical, cognitive, speech, language, or psychological impairment that may affect an individual's social functioning and degree of activity (Van Naarden, Yeargin-Allsopp, & Lollar, 2009). Individuals with disabilities also may demonstrate a lack of social skills and inappropriate behaviors resulting in decreased peer acceptance, reduced opportunities, negative public opinion, and feelings of loneliness or isolation (Elliott & Gresham, 1993; Gresham, 2002; Miller, Lane, & Wehby, 2005; O'Reilly et al., 2004; Wildman, Wildman, & Kelly, 1986). Therefore, it is necessary to investigate effective ways to teach individuals with disabilities the social skills required to live a more normal and less stigmatizing life.

Social skills' training, including instructions, modeling, rehearsal, and feedback (also called behavioral skills training; Miltenberger, 2008), has been used successfully to teach skills to individuals with developmental disabilities (Morgan & Salzberg, 1992; Storey & Gaylord-Ross, 1987; Wildman et al. 1986). Instructions are used to describe the behavior that will be trained and what the participant is required to say or do. The trainer then models what the desired behavior looks like when exhibited correctly. Rehearsal is used to allow the

participant opportunities to practice the skill that the trainer previously modeled. Usually the participant must practice until he or she reaches a specific criterion for mastery or until a specific time period has ended. Positive reinforcement (most often praise) is delivered for correct responses. Feedback (further instruction or prompting) is delivered when the participant delivers an incorrect response.

Matson and Senatore (1981) compared the effectiveness of traditional psychotherapy, social skills training (SST), and no treatment with 32 adults diagnosed with mild to moderate developmental disabilities. Appropriate and inappropriate verbal statements were identified as the target behaviors. Training consisted of either 5-weeks of SST or traditional psychotherapy, respectively, conducted in a group therapy room at a local clinic. Social skills training consisted of instructions, modeling, rehearsal, and feedback. Results of this study indicate that the mean frequency of appropriate verbal statements was higher in the SST group than in the traditional psychotherapy or no treatment conditions.

Pertinent limitations of this study are discussed. The SST program was conducted in a clinical setting rather than in the environment in which the target behaviors occur. Training in a clinical setting rather than in the natural environment often limits the stimulus control of the behavior being trained (Stokes & Baer, 1977). Although this study illustrates the value of SST, improvements are needed in the area of maintenance and generalization. Future

research would benefit from combining SST with assessment of generalization and specific strategies to promote generalization in the natural environment.

In a similar study, Gaylord-Ross, Haring, Breen, and Pitts-Conway (1984) evaluated SST plus the use of an object to help two autistic individuals learn to initiate and have longer conversations with their typically functioning peers. Objects used to facilitate conversation included a Pac-Man video game, Sony Walkman, and a package of chewing gum. Training took place in a special education class and participants were later evaluated in the courtyard of the high school, where both typically functioning and developmentally disabled students gathered during break times.   Both participants possessed a limited verbal repertoire and often exhibited problem behaviors during this time.   During baseline the teacher presented the verbal cue "take a break" and no further training was provided.   In the second phase the teacher delivered the same verbal cue and gave the participant one item to take into the courtyard (object only condition). During the third condition, participants were taught how to use each object (i.e. turn on the machine, press start, make Pac-Man move up, etc…).   During the last phase each participant was taught the social skills necessary to interact with others in the courtyard using the selected object. Instructions, modeling, rehearsal, and feedback were used to teach the participants how to use an object to initiate conversations with their typically functioning peers. Data were collected on the frequency and duration of social interactions.

Results indicated that both participants demonstrated an increase in the percentage of correct responses completed in the social skills task analysis across all objects. Additionally, the number of cumulative seconds of interactions increased for both participants during the SST conditions only. Although this study did not refer to the use of in-situ assessment, the authors did conduct generalization probes to evaluate the participants' use of the skills in the setting in which social interactions were lacking (courtyard of the high school). In addition, SST procedures (verbal/physical prompts, feedback, and positive reinforcement) were effective in teaching the participants the correct social response.

Chung et al. (2007) used peer mediated SST to teach social skills to individuals with developmental disabilities. Peer-mediated training involves the use of individuals that are more similar to the participants to teach skills, initiate conversation, or respond to initiations of the participant. Peer-mediated training is more likely to promote generalization of the skills with other non-trained peers, therefore possibly increasing the social interactions with many peers. Chung et al. (2007) evaluated the use of a shorter, adapted version of Thiemann and Goldstein (2001) SST program to teach communication skills to children diagnosed with autism. This program included a welcome statement, instructions, rehearsal, video-feedback, and positive reinforcement to teach participants appropriate verbal statements. Typically functioning peers were trained to conduct group social skills training to four children with autism spectrum disorder. The percentage of appropriate and inappropriate verbal

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responses was measured and later coded for evaluation. Results of this study indicated that 3 out of 4 participants exhibited an increase in appropriate verbalizations and decrease in inappropriate verbalizations. However, training did not occur individually in the natural environment, but rather as a group in a convention center. The validity of the results of this study may be increased by conducting individual training and evaluating the results in the environment in which the problem behaviors occurred.

In addition to the SST approaches described in the previous studies, other forms of social skills training have been demonstrated in the literature. Peer-mediated therapy and self-management have been used to increase generalization of social skills (Duan & O'Brien, 1998; Embregts, 2000; Fox, McMorrow, Bittle, & Ness, 1986; Kamps et al., 2002; Matson & Earnhart, 1981; Stewart, Van Houten, & Van Houten, 1992). Peer mediated therapy and self management utilize typically functioning peers trained to prompt social skills or self-management procedures such as the participant learning to record and rate his/her own behavior. These techniques have been used in an attempt to improve generalization of social skills. Video-modeling has been effective to teach social initiation and reciprocal play skills to young children with autism (Nikopoulos & Keenan, 2004). Social stories that include information regarding appropriate social responses have been used to increase eye contact, smiling, and initiations of social conversations for a boy diagnosed with Asperger's Disorder (Scattone, 2008).

Although these studies and others (Eckert, 2000; Petursdottir, McComas, McMaster, & Horner, 2007; Sim, Whiteside, Dittner, & Mellon, 2006) have shown that SST can be effective, this research is characterized by limited assessment of generalization and limited use of strategies to promote generalization. Research by Lumley et al. (1998) demonstrated a strategy for assessing generalization in the natural environment. In this study Lumley conducted in-situ assessments in which sexual abuse prevention skills of women with mild MR were assessed in natural circumstances without the women's knowledge that they were being assessed. In this way, the authors conducted a valid assessment of generalization of the skills in the natural environment in which they could be certain the skills were not under the stimulus control of the training stimuli or the presence of the trainer. By assessing the skills with in-situ assessments, Lumley et al. (1998) showed that the skills demonstrated in training sessions did not generalize to the natural environment. Across similar studies evaluating SST, the training was initially effective in teaching social skills but was not sufficient to promote generalization of these skills in the natural setting (Foxx, McMorrow, & Mennemeier, 1984; O'Reilly et al. 2004).

Miltenberger et al. (1999) expanded on the literature by conducting behavioral skills training and evaluating in-situ training as a strategy to promote generalization. In this study sexual abuse prevention skills were trained to 5 women diagnosed with mild to moderate mental retardation living in a group home setting. Four target responses were trained. In response to a sexual abuse lure delivered by a confederate posing as a staff member, the participant

1) does not agree to engage in or comply with sexual request, 2) says no or uses other verbal speech to refuse request, 3) leaves the situation or tells the confederate to leave, and 4) reports the incident to staff. Praise and food coupons were delivered for correct responses. Behavioral skills training (BST) continued until all women could accurately and independently respond to the confederate's sexual advances. In-situ assessments were conducted one week after BST ended. In-situ training was provided to those participants receiving less than the 4 maximum points that could be earned for each scenario. During in-situ training, a trainer hidden from the view of the participant stopped the interaction between the participant and the confederate and provided corrective feedback. Training consisted of asking the participant what the confederate had asked her to do and how she responded to this request. Additionally, participants were told the correct response, observed a model of the correct response, and rehearsed the skill until it was exhibited independently during 2 role-plays. In-situ assessments were again conducted three days after the last assessment. In-situ training occurred until each participant received the maximum 4 points for three consecutive assessments.

Miltenberger et al. (1999) established that BST alone was not enough to promote generalization of the participants' appropriate responses in the natural setting. Four to eight in-situ training sessions were conducted in order for the participants to independently respond to inappropriate sexual requests in their home. This study cites the importance of in-situ training as an addition to BST in teaching social skills to individuals with developmental disabilities.

Generalization of the desired skill was more likely when BST and in-situ training occurred. Additional research has also found BST plus in-situ training to be successful in teaching children safety skills such as prevention of gun play (Miltenberger et al., 2005), abduction prevention skills (Johnson et al., 2005; 2006), and avoidance of hazardous chemicals (Dancho, Thompsen, & Rhoades, 2008). In each of these studies in-situ training enhanced the effectiveness of BST and promoted generalization.

The purpose of this study was to evaluate a social skills training package including instructions, modeling, rehearsal, and feedback plus in-situ training for teaching greeting skills to participants diagnosed with mild to moderate mental retardation. Staff identified greeting skills to be a particularly important social skill for these residents as they engage in several inappropriate behaviors when new individuals or consultants visit their home. Inappropriate behaviors such as divulging personal information, requesting immediate attention, asking inappropriate questions, interrupting, getting too close to the visitor, and other attention seeking behaviors were identified as undesirable and stigmatizing. More appropriate greeting skills may lead to increased social interactions and greater acceptance of these individuals.

Method

Participants and Setting

Seven participants diagnosed with mild to moderate mental retardation volunteered to take part in greeting skills training. The following selection criteria were applied to determine which clients were selected for treatment. Participants included in this study were able to understand a minimum of four simple requests, had the opportunity to interact with others who visit their home or work setting, and had the ability to remember a simple scripted statement and execute it.

All participants were clients at a non-profit agency that provides residential services to adults with developmental disabilities. Three clients from one group home and four from another were selected to participate in this study. Each group home accommodated up to 6 clients and was located in the community. Participants in this study either had a bedroom to themselves or had one roommate. The primary goal of the agency was to help these individuals achieve their maximum level of independence in their day to day lives. For some of these clients this meant living in a group home their entire life whereas others may advance to living on their own with limited staff assistance. It is important to note that many of the individuals living at the agency were under court order having previously been convicted of various sexual crimes against children. This fact often limited their freedom to decide where they would like to live and work.

Bob was a 49 year old man diagnosed with a primary disability of mild mental retardation and secondary diagnosis of depression. Bob had a history of

engaging in inappropriate sexual behavior, violation of probation, physical aggression, and verbal aggression. In the past Bob graduated sex offender therapy and lived in his own home but returned to jail after violating his probation. After leaving jail Bob returned to living in a group home. Due to the severity of his behaviors, Bob required 24-hour staff supervision.

Bill was a 40 year old man diagnosed with a primary disability of moderate mental retardation and a secondary disability of cerebral palsy. Bill also had a traumatic brain injury. Bill had a history of inappropriate sexual behaviors, inappropriate social behavior, physical aggression, verbal aggression, and self-abuse. Bill required 24 hour supervision because he continued to engage in problem behaviors and posed a risk to the community.

Kurt was a 26 year old man diagnosed with mild mental retardation and autism. Kurt had a history of inappropriate sexual behavior, inappropriate social behavior, and stealing. The last incident of inappropriate sexual behavior resulted in Kurt's arrest, incarceration, and current placement in a group home. Kurt also required 24 hour staff supervision but in the future hopes to move into a place of his own with less support.

Luis was a 31 year old man diagnosed with mild mental retardation, anxiety, and epilepsy. Luis had an extensive history of inappropriate sexual behavior. He was court ordered to his current residential facility for previously engaging in a Lewd and Lascivious Act against a minor. Luis required 24 hour staff supervision due to the severity and high risk of his behaviors.

Mike was 41 year old man diagnosed with mild to moderate mental retardation and poly-substance abuse. Mike had a history of engaging in substance abuse, stealing, and inappropriate social behavior. These problem behaviors required Mike to live in a 24 hour supervised intensive residential setting and prohibited him from living independently and successfully in the community.

Robert was a 39 year old man diagnosed with mild mental retardation. Robert had a history of engaging in inappropriate sexual behaviors (stealing girls undergarments, inappropriate interactions with women and minors) and inappropriate social behaviors (i.e., verbal aggression, inappropriate and excessive complaining, bossing others). He continued to display dangerous inappropriate sexual behaviors (such as breaking into a neighbors home to hide in the closet of a young child, which resulted in his arrest but no access to the child) , as well as a high frequency of disruptive social behaviors. For these reasons, Robert required 24 hour staff supervision.

Lastly, Jason was a 28 year old man diagnosed with mild mental retardation. Jason had a history of inappropriate sexual behavior with children. Due to charges of sexual assault on a child, he was court ordered through the Department of Children and Families to remain in an intensive residential facility with 24 hour supervision.

In-situ assessment sessions and training sessions occurred at the group home front door.

Dependent Measures and Assessment

Behavior analysts employed at the research site were asked to identify a social skill that would be important for their clients to learn. They identified that many of the clients needed training to learn appropriate greeting skills. Specifically, the clients failed to engage in appropriate greeting responses and often engaged in undesirable behaviors (e.g., divulging personal information, asking inappropriate questions, interrupting, being within arm's length of the visitor, or engaging in other inappropriate target behaviors that are operationally defined below) when someone entered the group home.

The dependent variables for this study were the percentage of correct greeting responses exhibited when an unknown person knocked at the door of the group home. The person knocking at the door of the group home was a research assistant, hereafter referred to as the confederate. The correct greeting responses were recorded for 30 sec after the participant made initial contact with the confederate either by audio recording or completion of data sheet by another confederate present at time of assessment. Correct greeting responses included the following behaviors: saying 1) "Hello." 2) "What is your name?" 3) "Who are you here to see?" 4) "I'll tell staff that you're here." 5) Telling staff that _____ is at the door. These data were presented as the percentage of correct greeting responses. Audio recordings and confederate documentation were evaluated and scored after the interaction was completed.

The confederate used scripted responses to the participant's greeting upon entering the group home. If the participant said "Hello," the confederate did

the same. If the participant said "What is your name?" the confederate stated his or her name. If the participant said "Who are you here to see?" the confederate named the staff on duty. If the participant engaged in any other verbal interactions (inappropriate behavior), the confederate stood there and smiled until the 30 sec had elapsed. If the participant correctly sought out group home staff to inform the staff of a visitor, staff responded by saying "thank-you for letting me know someone is here."

Staff members working at each group home were trained to respond to the participant's behavior(s) during baseline and in-situ assessments. During training sessions the trainers provided enthusiastic praise following each of the participant's correct greeting responses. All other participant responses were ignored. Staff and confederates were also trained on filling out the data sheet.

Correct greeting responses were recorded during in situ assessments. In-situ assessments occurred in the natural environment, in this case when a confederate knocked at the door of the group home, without the participant's knowledge that an assessment was occurring. Recording of the interaction was completed by either an audio recording or a data sheet completed by a second confederate/staff present during the assessment.

Interobserver Agreement

Research assistants and the first author observed and scored greeting responses from audiotape and duplicate data sheets in at least 76% of sessions across phases. Interobserver agreement was calculated for greeting responses by dividing the number of agreements on the 5 responses by the number of agreements plus disagreements, multiplied by 100. IOA was 98.6% (range 80 to 100) for Bob, 100%, for Bill, 100%, for Kurt, 97% (range 80 to 100), for Luis, 97% (range 80 to 100), for Mike, 98% (range 80 to 100), for Robert, 100%, and for Jason, 98% (range from 80 to 100).

Experimental Design

A multiple-baseline across participants design was employed to assess program effectiveness. The sequence of phases included baseline, behavioral skills training (BST), and in situ training (IST). Participants had either 4, 5, 6 or 8 baseline assessments and then participated in 3 BST sessions. In situ assessments occurred within two days following each BST session. If a participant did not achieve 100% correct greeting responses during the in-situ assessments following BST, in situ training was initiated.

Procedure

Baseline. The participants' responses were observed during baseline without training or feedback. Participants were also blind to the purpose of the study. The participants' responses were reviewed from audio taped interactions or written documentation collected by a secondary confederate or staff present during assessment. Responses were scored as the percentage of correct greetings.

Behavioral Skills Training. During the initial training sessions each participant was told that he will be practicing "greeting" skills. Participants living in the same home were trained together and assessed separately. A role-played scenario involving a guest entering the group home was presented, the appropriate greeting responses were described and modeled, and the participants rehearsed the skills with feedback 10 times each during three training sessions. Any inappropriate participant responses were ignored. The percentage of correct greeting skills responses was assessed for each participant during in-situ assessment sessions within two days of the training session.

Training began with instructions. The trainer described the five greeting skills to use when a person enters the group home. After providing instructions, the trainer modeled the correct greeting. In a role play, the trainer had a participant play the role of a person entering the group home where the trainer walked up to the person and exhibited the greeting response. The staff in the group home then thanked the trainer. After the participant observed the model,

the trainer asked the participant to describe the greeting response he just observed. The trainer provided praise if the participant described the greeting responses correctly and gave feedback if the participant failed to identify any of the greeting responses. After the participant correctly identified the greeting responses, the participant was given an opportunity to rehearse the skills.

The trainer asked the participant to practice these skills in a role-play scenario. The participant played the role of the greeter and the trainer played the role of the person entering the group home. The trainer knocked on the door and the participant walked up to the trainer and delivered the greeting responses. The trainer provided praise to the participant as he correctly engaged in each greeting response. The staff thanked the participant if he appropriately announced the visitor's presence. If the participant failed to engage in any of the greeting skills within three seconds he immediately received corrective feedback. The trainer first praised the participant for any greeting responses that were role-played correctly. Incorrect verbalizations or behaviors were followed with the trainer describing the correct greeting skills. The participant was asked to identify the correct greeting responses. After the participant correctly identified the five greeting responses, the participant rehearsed the skills again. The trainer provided praise to the participant as he stated each correct greeting response. Rehearsal and feedback continued until each participant had the opportunity to rehearse the greeting skills ten times.

The participant's responses to these ten role-played scenarios during training were recorded as the percentage of independent greeting responses and are reported in table 1.

After the participant had engaged in each training session, an in-situ assessment was conducted in the same manner as in baseline. The in situ assessment was conducted at least one to two days after the training session. After the in situ assessment following the third training session was completed and the participant did not engage in the correct greeting response, in-situ training was provided.

In-situ training. During the last in-situ assessment following BST, if the correct greeting was not used, the trainer (who was unseen up to that point) showed up, interrupted the interaction, and told the participant he had to practice the correct greeting response. The trainer modeled the greeting responses and then had the participant practice the skills. If the participant performed the skills correctly, he received praise. Incorrect responses were immediately interrupted by further instructions and modeling until correct. If other inappropriate responses occurred the staff interrupted the responses and redirected the participant to the greeting response. Training continued until five rehearsals of the correct greeting responses occurred consecutively. In-situ assessment (followed immediately by in situ training if needed) continued until the person could consistently respond with the correct greeting responses.

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Results

Figure 1 shows the percentage of correct greeting responses for all participants across baseline (BL), behavioral skills training (BST), and in-situ training (IST) phases. Overall, the participants scored a mean of 13% correct greeting responses during baseline. All participants demonstrated a moderate increase in percentage of correct greeting skills after BST sessions. Specifically, participants scored a mean of 55% correct greeting responses during assessments that followed BST sessions. After the last BST session, 6 of 7 participants required in-situ training. Substantial improvements in participant greeting responses were noted for all but one participant after receiving between 1 to 10 in-situ trainings. Participants' scores increased to a mean of 79% during in-situ assessments.

Bill and Bob did not exhibit any of the correct greeting responses during baseline, with each obtaining 0% correct responses. Both participants demonstrated a mean of 53% correct greeting responses during assessments that followed BST sessions. Following IST, Bob exhibited 100% correct greetings. During IST, Bill's responding was highly variable, although he achieved a mean of 87% correct greeting responses during the last three IST assessments.

Percentage of correct greeting skills

Sessions

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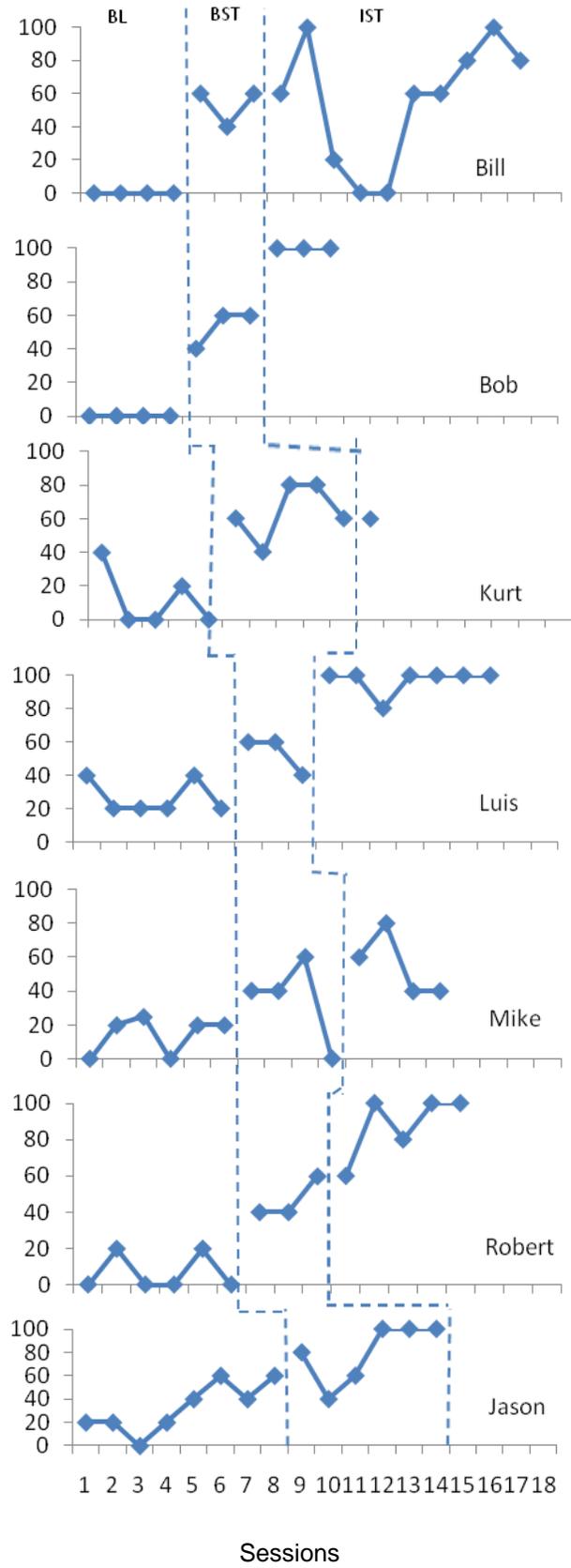
Kurt had a mean of 20% correct greeting responses during BL. He also demonstrated an increase to 64% correct during BST assessments. He later refused to participate in IST sessions and was withdrawn from the study.

Luis' BL data were low and stable, receiving an average of 27% correct greeting responses. Following BST sessions, Luis exhibited an average of 53% correct greeting responses. During IST Luis maintained an average of 97% correct responses. In addition, Luis exhibited 100% correct greetings during the last 4 consecutive IST assessments.

Robert also reached a stable baseline within 6 assessments, with a mean of 10% correct greeting responses. After 3 BST sessions, Roberts' correct greeting responses increased to a mean of 47% during assessments. Roberts' correct greeting responses also increased to a mean of 88% correct during the IST phase. Lastly, he received consecutive scores of 100% correct greetings during the final two assessments.

Mike exhibited a mean of 14% correct greeting skills during baseline. Data collected following BST sessions established that Mike performed the correct greeting responses a mean of 35% correct during assessments.   During in-situ training, Mike exhibited a 20% increase in correct greeting responses (mean of 55% correct greeting responses). Moreover, Mike reached 80% correct greeting responses during session twelve. However, assessment data that followed this session decreased to a mean of 40% correct greeting responses (see discussion).

During baseline, Jason initially showed a low and stable rate of correct greeting responses. Following the third BL session, Jason exhibited an increase in correct greeting responses with the last half of baseline stabilized at a mean of 50% (last 4 sessions). BST was then implemented. Jason exhibited a mean of 80% correct greeting responses during assessments that followed BST. Because he exhibited the correct greeting response during the last 3 consecutive BST assessments, IST was never implemented.

Table 1 and Table 2 (on pages 22-23) show all participants' percentage of independence in demonstrating the five greeting skills during BST and IST role-plays.

Table 1

Percentage of Correct Response during Behavioral Skills Training Sessions Role Plays.

_____

	Sessions		
Participant	1	2	3

_____

Bob	100	100	100
Bill	0	20	80
Kurt	80	100	100
Robert	90	80	80
Luis	80	80	80
Mike	60	80	80
Jason	80	80	100

Table 2

Percentage of Correct Greeting Responses during IST role plays.

Participant	1	2	3	4	5	6	7	8	9	10	11	12
				Sessions								
Bob	100	*	*									
Bill	83	100	*	100	100	71	100	100	100	*	100	100
Kurt	Participant withdrew from study during first IST session.											
Robert	100	*	100									
Luis	100	*	*	100	*							
Mike	71	75	75	100	100							
Jason	100	100	100	100	*	*	*					

* Scored 100% during assessment therefore no IST was implemented.

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Discussion

This study showed that BST increased correct greeting skills for all participants. However, greeting scores remained at a mean of only 55% correct after BST. During the in-situ training condition, all participants correct greeting responses increased to a mean of 79%. BST did teach participants the correct skills during training (Table 1) but these skills did not generalize when assessed in the natural environment. In-situ training was required for all but one of the participants to engage in the correct greeting responses outside of BST sessions.

The data suggest that if the participant is not able to receive instruction, practice, and feedback at the time the behavior occurs (in situ training), then it is unlikely the skill will generalize to the natural context of a visitor at the door. The exception was Jason who reached criteria for mastery after three BST sessions and six assessments. This may have been because Jason seemed to eventually discover that when certain persons came to the door he would likely be assessed. Contributing to this potential reactivity effect was the fact that some RAs had to do more than one assessment for Jason, so it is possible that he recognized them and was cued to the assessment.

The participants in this study had various levels of functioning. Someone with a higher functioning level was able to learn and maintain the skills faster than those with a lower functioning level. For instance, Bob (diagnosed with mild MR) was able to maintain correct greeting skills after three BST sessions and only one in-situ training. However, Bill (diagnosed with moderate MR and traumatic brain injury) required seven in-situ trainings and was never able to

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reach 100% correct greeting skills during three consecutive assessments. In fact his performance actually dropped to nearly 0% correct greetings between sessions 10-12. After the fifth IST assessment, Bill received a booster session of BST and his performance increased again to a mean of 76% correct greetings. Increasing the number of BST sessions may allow lower functioning clients the ability to successfully learn the skills. Therefore, future researchers may want to extend the number of behavioral skills training sessions (5-10 BST sessions) or return to BST if the participant is unable to reach performance criteria.

In addition, the duration of time between assessments and trainings seems to have affected some of the participants' scores. For instance, Bill received two in situ training sessions and then scored 100% during the third in-situ assessment. Because he made no errors, he did not receive in-situ training after that assessment. By the time he was assessed the fourth time at least 2 weeks had passed without receiving any performance feedback. Because Bill is diagnosed with moderate mental retardation and TBI, the longer time between trainings, a lower level of cognitive functioning and lack of reinforcement may have been responsible for the rapid decrease in correct greeting skills in the IST phase. In the future, in-situ trainings that occur in more rapid succession may result in a higher percentage of correct greeting skills during follow-up assessments.

Conducting in-situ training and assessment more closely together in time is likely to result in the participant engaging in the correct behavior(s) during assessment because they are more likely to remember the skill. The duration of

time between IST and assessments ranged from one day to approximately three weeks. The data suggest that if a participant receives training or feedback within close proximity to an assessment, he is more likely to exhibit the correct response during assessment.

Moreover, a high level of reinforcement following 100% correct role plays or assessments may make it more likely that the participant will remember the skills. Decreases in participants' scores may have resulted from a lack of consistent positive reinforcement. When a participant scored 100% during the in-situ training phase, he did not receive any training or feedback from the researcher. It was not until he scored below 100% that he received in situ training (with the exception of Mike). Staff were supposed to provide praise if the participant exhibited the correct greeting response during an assessment. This did not consistently occur and sometimes resulted in no positive reinforcement when a participant said the correct greeting response.

Due to the fact that he seemed to be receiving more attention for incorrect greetings than for correct greetings (due to in situ training), Mike was told during session 14 that if he scored 100% correct greeting responses, then he would receive a short duration of reinforcement (time with the researcher). Thereafter, when he made mistakes during an assessment, training was brief, but when he got 100%, the researcher spent time with him as a reward. Mike's score improved to 80% during the following assessment (100% during final assessment). During session 10, Mike exhibited 0% correct greetings. At the time of the assessment Mike was eating dinner and got up to answer the door. It

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appeared that he wanted to get back to his meal and may have performed better under different circumstances.

During BST, Robert's percentage of correct greeting responses demonstrated a possible upward trend in the data (2 data points at 40% followed by 1 at 60%). Assessments should have continued until his data had stabilized in the BST phase before proceeding to the in-situ training phase. It is possible that his percentage of correct greeting responses may have continued to rise in BST. Alternatively, it is possible that the greeting responses could have fallen back to 40% or less. Regardless, following 2 in situ training sessions, he achieved 100% correct responding and maintained at 100% for 3 of 4 assessments.

Jason received eight BL assessments, with the last 4 sessions stable at 50%, before moving on to BST sessions. During BST, Jason achieved a mean of 80% correct greeting skills within 6 assessments. As previously discussed, Jason seemed to have identified the fact that when specific individuals knocked on the door, the researcher would show up and provide training. The use of several of the same RA's may have been responsible for Jason's awareness of some of the assessments. It appeared that Jason reached the performance criteria more rapidly than the other participants because he may have been able to determine when assessments occurred. In addition, his ability to state the correct greetings during assessment may have been positively reinforcing. In the past, Jason has been eager to do well during the assessment of skills learned

within a BST format. As a result, it seemed that making correct responses during BST had become a conditioned reinforcer, perhaps contributing to his success.

In-situ training is considered effective because the trainer is catching the participant in the moment that he is exhibiting the skills incorrectly or failing to exhibit the skills at all and providing immediate feedback. If making an error and receiving training to correct it is aversive, then correct responding in future assessments should be negatively reinforced by avoiding in situ training. However, escape from corrective feedback seems to be more successful as a reinforcer (more likely to be negatively reinforcing) when the participants believe the behavior they are exhibiting will negatively affect them. For instance, receiving corrective feedback regarding gun safety skills or abduction prevention skills may be taken more seriously as the skills are related to a threat of bodily harm or death. The use of greeting skills occurs in a far more common situation (someone at the door) and is not associated with the same threat of harm. As a result the participant's response to feedback may be different than in other studies showing the effectiveness of in situ training (Miltenberger, et al. 2005; Miltenberger, et al. 1999; Lumley et al., 1999). It should be noted that the participants in this study share a common goal of wanting to live on their own. Many of the participants are sex offenders and should know how to greet unknown visitors at their door. In this study, the participants only received feedback about their incorrect greeting responses. It may be helpful to address the consequences of letting someone in your house that could cause harm, risk

of being taken advantage of or put the participant at risk for criminal behavior (for this population of participants).

In-situ training involves the repetitive practicing of a behavior in the moment that it occurs. Some of the participants seemed to feel uncomfortable repetitively practicing these skills during in-situ training. Persons running in-situ trainings with clients may have more success if they have a history of working with the individual and thus the individual is more comfortable with the trainer. In such cases, getting it right and getting approval may be more likely to be a reinforcer for the individual

Kurt initially was hesitant to participate in the study, citing that he really didn't need to know how to answer the door. Once he was reminded of his goal of wanting to live on his own and receiving assurance that his involvement in the study had no effect on the outcome of his future, he agreed to participate in BST. Kurt refused to take part in the first BST session but later complied and did well. He seemed very uncomfortable practicing greeting skills at the door of the group home (where other clients could be watching). The researcher attempted to accommodate for this by trying to get staff to distract other clients during trainings with Kurt. This was not always successful and Kurt appeared uncomfortable and did not take part in all of the role-plays. During the first in-situ assessment, Kurt stated 3 out of 5 correct greeting responses. When approached by the researcher to conduct in-situ training, he stated that he did not want to answer the door this way. During this assessment, Kurt independently told the researcher the correct greeting skills two times. After he was asked if he wanted

to practice the skill and he stated "not really". At this time it was determined that Kurt would be withdrawn from the study as he clearly did not want to participate.

The data suggest that in-situ training was effective to improve participants' correct greeting response. However, there were several limitations that may make it difficult to use this method of teaching skills in the natural environment. Learning greeting skills required the researcher to plan to have confederates that are unknown to the participant, knock on their door to conduct assessments. Because of this, several confederates were needed to execute the research. In order to successfully implement in- situ training, several resources must be available. This may be a problem for a researcher that cannot find enough confederates or an agency that is already under staffed.

In addition, the nature of in-situ training is that the participant does not know when he will be assessed. In this study, several of the participants lived in the same house. This made it difficult to plan assessments in which the researcher would not be discovered by the participant. For this reason, the decision was made to assess only 2 participants from the same home per session. Moreover, because confederates were limited, the time between two participants' assessments ranged from ten minutes to an hour apart. The time between assessments was determined by the staff working in the group homes. This required that at least two staff was working in the house to distract the second participant and come up with reasons to get the other participant to answer the door. In-situ training may not be practical to teach skills that require a new and different person to conduct each assessment.

Overall, participants exhibited an average of 55% correct greeting skills during BST. Although this was a considerable increase from baseline, six out of seven participants required in-situ training to increase the percentage of correct greeting skills even further. Jason was the only participant to acquire the correct greeting skills before IST was implemented. These results are consistent with previous research demonstrating the value of BST and IST for teaching skills to individuals with disabilities. Future research should evaluate BST and IST for other socially valid social skills needed by individuals with disabilities to become more independent and accepted into the community.

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Appendices

Appendix A: DV Data Collection Sheet

Client Name:_____ Date:_____ Time:_____
Group Home:_____ RA Name:_____

Please circle a "yes" or "no" to indicate if the participant said each of the following statements. Please use the additional space to write down any notes that you think would be significant to the study.

1. Says "Hello".
        Yes   No
        _____
        _____
        _____

2. Asks "What is your name?"
        Yes   No
        _____
        _____
        _____

3. Asks "Who are you here to see?"
        Yes   No
        _____
        _____
        _____

4. Says "I will tell staff you are here."
        Yes   No
        _____
        _____
        _____

5. Tells staff that (RA name) is here.
        Yes   No
        _____
        _____
        _____

Appendix B: Data sheet percentage of independence during role-plays and trainings

Target Behavior/ Behavioral Skills Training/Assessment of Participants Greeting Skills Data Collection

Participants Name: _____   Circle the one that applies: BST / Assessment / Baseline

Date																						
Time																						

Location

Residence

Other

Dependent Variables

Hello

What is your name?

Who are you here to see?

I'll tell staff your here

Telling staff that ____ is at the door

Behaviors

Inappropriate sexual behavior

Physical Aggression

Verbal Aggression

Within arms Length

Property Damage

Elopement

Interrupting

Divulging personal information

Training Data

Role-play 1

Role-play 2

Role-play 3

Role-play 4

Role-play 5

Role-play 6

Role-play 7

Role-play 8

Role-play 9

Role-play 10

Data Collector Initials