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The Effects of Video Modeling on Staff Implementation of the Picture Exchange Communication System in a Group Home for People with Intellectual Disabilities

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THE EFFECTS OF VIDEO MODELING ON STAFF IMPLEMENTATION OF THE PICTURE EXCHANGE COMMUNICATION SYSTEM IN A GROUP HOME FOR PEOPLE WITH INTELLECTUAL DISABILITIES

by

Shawnee Dee Collins

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Disability Disciplines

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ABSTRACT

The Effects of Video Modeling on Staff Implementation of the Picture Exchange Communication System in a Group Home for People with Intellectual Disabilities

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Shawnee Dee Collins, Doctor of Philosophy

Utah State University, 2012

Major Professors: Dr. Charles Salzberg and Dr. Judith Holt
Department: Special Education and Rehabilitation

Treatment integrity has recently received increased attention in behavior analytic research. As more individuals with intellectual disabilities live in integrated, community group home settings, it is increasingly important that direct support staff are well trained to implement behavioral interventions, including skill acquisition programs. However, given the typically low supervisor-staff ratios and lack of prior training for most residential staff, providing the adequate intensity of training to teach sophisticated behavior skills is challenging. These studies investigated the effects of watching a video model and completing a brief quiz on staff's ability to implement Phases I (study 1) and II (study 2) of the Picture Exchange Communication System (PECS) in group homes for adults with intellectual disabilities. Moreover, the effects of this staff training on clients' correct use of PECS was also evaluated. Each study used a nonconcurrent multiple-baseline design across participants to evaluate the effects of the intervention procedures. In study 1, all four primary staff participants increased the percentage of correctly

implemented Phase I steps after viewing the video model and completing the quiz. In addition, one of the primary staff participants generalized the skills to a second client participant. Likewise, secondary staff participants also demonstrated improvement after the intervention and clients demonstrated an increase in correct picture exchanges. In study 2, all three staff participants increased the percentage of correctly implemented Phase II steps after viewing the video model and taking the quiz and these effects maintained over time.

(120 pages)

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As more individuals with intellectual disabilities live in integrated, community group home settings, it is increasingly important that direct support staff are well trained to implement behavioral interventions. However, there are often barriers to providing staff members with sufficient training. For example, there is typically a low supervisor-staff ratio. These studies evaluated the effects of watching a video model and completing a brief quiz on staff's ability to implement Phases I (study 1) and II (study 2) of the Picture Exchange Communication System (PECS) in group homes for adults with intellectual disabilities. Moreover, the effects of this staff training on client's correct use of PECS was also evaluated. In study 1, all four staff member's performance improved after watching the video and taking the quiz. Likewise, in study 2, all three staff members' performance improved after watching the video and taking the quiz.

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INTRODUCTION

Treatment Integrity

Evidence based practice requires interventions be systematically implemented as designed (Collins & Salzberg, 2005; Horner, Carr, Halle, McGee, Odom, & Wolery, 2005). Historically, intervention researchers attended carefully to the measurement of dependent variables and collection of interobserver agreement data was standard. Far less attention was paid to how well interventions were conducted. However, recently, as effective practice guidelines are adopted by professional associations (e.g., Behavior Analyst Certification Board, American Psychological Association), contemporary researchers are also being encouraged to examine the quality with which their interventions are implemented; that is, their treatment fidelity or treatment integrity. Early on, Peterson, Homer, and Wonderlich (1982) discussed the importance of treatment integrity (i.e., the extent to which independent variables are implemented as described in the procedures) in behavior analysis. Behavior analysts know that if an intervention is not implemented systematically and consistently, positive client outcomes are far less likely to be achieved. Moreover, in experimental studies, failure to achieve a successful outcome may be difficult to attribute to a lack of potency of the intervention if the fidelity with which the intervention was conducted is uncertain.

Nowhere is the issue of treatment fidelity more important than when direct support staff are working with adults with severe disabilities who often engage in serious problem behaviors. In most research settings, qualified professionals implement interventions. And, if they do not directly implement the interventions, they provide frequent, on-site supervision to persons responsible for implementation. These

professionals usually have a bachelor's, master's, or other advanced degree and are often licensed. This suggests a high degree of skill is generally recognized as an essential factor to successfully implement interventions intended to produce change in clients of this type. However, and perhaps unfortunately, staff working with adults with disabilities are generally not trained professionals. In community-based residential settings, staff who implement behavioral interventions typically have little or no formal training in behavior analysis. Moreover, the rate of staff turnover is extremely high (i.e., 82% in 2007 in Utah according to data provided by the Utah Association of Community Services, 2008), and the problem is exacerbated by low-wages (i.e., starting wage of $8-$9 in Utah in 2011). Further, these direct-support staff are often responsible for implementing multiple behavior plans simultaneously with multiple clients. Clearly, these staff members need extensive training and supervision. However, funding limitations, geographical barriers, and supervisors' large caseloads often make it very challenging to provide the necessary training. The result is direct-support staff typically receive minimal training on behavioral interventions from residential managers who may themselves have minimal training. This lack of sufficient training may, indeed, adversely affect how well behavioral interventions are implemented in residential settings and that, in turn, likely has a negative impact on client outcomes.

Training for Group Home Staff

On-Site Training

For many years researchers have studied the effects of various live training procedures (e.g., observation, didactic instruction, group discussion, role-play, coaching,

feedback) on staff performance. Parsons, Reid, and Green (1996) evaluated the effects of the Teaching-Skills Training Program with direct-care staff. The authors developed the program in response to an increased need for staff training programs that provided evidence of improved client outcomes as related to improved staff performance and provided evidence of program efficiency. Participants attended a 6-hour classroom-based training session and received on-the-job monitoring and feedback. It is important to note only two to four participants were in each classroom session. The authors found staff skills for all participants improved following the training session and all participants met the mastery criterion within two on-the-job training sessions. Moreover, in a second study with the same procedures, the authors again found staff skills improved for all participants following the training and as the staff members' skills improved, there was a corresponding improvement in student performance.

One of the most basic (and perhaps obvious) findings, is that some training is better than no training. Wood, Luiselli, and Harchik (2007) conducted a study with four direct-care staff members who were teaching Phase I of the Picture Exchange Communication System (PECS) to a 24-year-old man with autism and mental retardation. The authors stated that staff members were given a checklist with Phase I procedures, but received no additional training. They found that after providing trainers with live training (including explanation of rationale of PECS, detailed review of Phase I procedures, demonstrations, and performance feedback) the percentage of correct implementation increased for all participants.

In general, researchers find packages including two or more types of live training improve staff performance. For example, Toogood (2008) evaluated the effects of

interactive training including pre-training observation and feedback, interactive coaching and discussion, and post-training observation and review. They found that staff interactions with all clients increased following the staff training and maintained during three week maintenance sessions. A few important variables to acknowledge include that each participant was paired with two trainers and each training session lasted about two hours.

Moreover, Crosland et al. (2008) found that teaching staff members skills from *The Power of Positive Parenting* (Latham, 1990) resulted in increased positive interactions and decreased negative interactions for all staff members. Staff members participated in 15 hours of classroom based instruction and received in-home feedback following observations. In their results section, the authors acknowledge some common barriers for researchers in group home settings: irregularity of observations, changes in staff schedules, and staff turnover. In fact, these are the very issues that often make conducting 15-hours of classroom-based instruction and providing in-home feedback impractical in large companies with multiple group homes spread throughout one or more states.

Although live, on-site training by professional staff can be effective, it is not always practical, nor even possible, in community settings. Nevertheless, it often takes highly refined skills to implement interventions with clients with significant intellectual disabilities in a residential environment, and there is reason to believe that, without effective training, staff (and clients) are far less able to be successful.

Video Modeling

The challenge then is how to provide sufficiently frequent training on detailed procedures to low paid staff who turn over frequently and how to do that with limited numbers of supervisors, many who may be remotely located. Training staff generally requires a trainer who is well versed in a therapeutic process to demonstrate (i.e., model) the procedures, then coach (i.e., provide feedback and correction) staff members as they attempt it. Given a low supervisor-staff ratio, it is not always possible to implement that training process with sufficient frequency and intensity. The use of technology, specifically video modeling, may be one means to overcome this training barrier. Dowrick and Jesdale (1991) define modeling as "the process by which an individual (the model) serves to illustrate behavior that can be imitated or adapted in the thoughts, attitudes, or overt behaviors of another individual (the observer). The model may be live, filmed, described in any other medium—or even imagined" (p. 65). As the use of technology has become more prevalent in the behavioral sciences, video models have been used to effectively teach a variety of behaviors, including play skills to children with autism (MacDonald, Clark, Garrigan, & Vangala, 2005; Reagon, Higbee, & Endicott, 2006; Taylor, Levin, & Jasper, 1999), spelling to children with autism (Kinney, Vedora, & Stromer, 2003), climbing skills to inexperienced climbers (Boschker & Bakker, 1995), social skills to children with autism (Kimball, Kinney, Taylor, & Stromer, 2004), throwing movements (Williams, 1989), and ski movements (Whiting, Bijlard, & den Brinker, 1987).

In addition, video models have been used effectively to teach professionals to implement interventions. For example, several studies demonstrate positive outcomes for

teaching counseling strategies (Peters, Cormier, & Cormier, 1978; Brown, 1977; Alssid & Hutchison, 1977). Neef, Trachtenberg, Loeb, and Sterner (1991) evaluated the effects of a video-based instructional package to teach daily routines and behavior management skills to respite workers. And, Guercio and Dixon (2010) used video feedback and video models to improve social interactions between staff members and individuals with an acquired brain injury. Moreover, Lavie and Sturmey (2002) used video models to teach staff paired-preference assessments.

Moore and Fisher (2007) studied the effects of video modeling on staff implementation of functional analysis procedures. Staff members participating in this study had Bachelor's degrees in psychology and received three types of training: lecture, partial video model, and complete video model. In the lecture and partial video model phases, participants made "small to moderate improvements over baseline" and participants failed to meet the mastery criterion. The researchers found that the percentage of correct implementation was higher for all three participants when using the complete video model. All but one participant met mastery criterion (i.e., 80% correct) with the complete video model. The remaining participant met criterion after receiving post-session performance feedback.

Similarly, Macurik, O'Kane, Malanga, and Reid (2008) evaluated the effects of video models on support staff implementation of components of behavior plans. Staff implemented three behavior support plans and the authors compared the effects of live training to video modeling using a between-subjects, random-groups design. They found improved performance across both groups of staff. In fact, staff who received live training correctly implemented an average of 84% of intervention components while

those who received video training averaged 89% correct. There were not significant differences in the percentages of correct implementation. Moreover, the authors also conducted efficiency analyses and found that the amount of time required for staff trainees and behavior analyst trainers was significantly less for the video training group. It is also important to note the video model in this study consisted of 4-6 hours of staff training. In many residential settings, 4-6 hours could be 2/3 or more of a staff's shift and, thus, may be unrealistic.

Collins, Higbee, and Salzberg (2009) implemented similar video modeling procedures to determine the effects of video modeling on direct support staff's implementation of problem solving procedures. In this study, the authors found that viewing a three minute video model increased the percentage of correct implementation of problem solving training steps for all six participants. Moreover, these skills maintained during maintenance probes, generalized to novel problems, and generalized to actual clients. The authors pointed out that one limitation in this study was the relatively simple skills required to implement the problem solving training steps. Moreover, the authors did not collect client outcome data; therefore, it is unclear whether the increased performance by staff had any impact on client outcomes.

In addition, Rosales, Stone, and Rehfeldt (2009) evaluated the effects of a behavioral skills training package (including written instruction, verbal instruction, video modeling, on-site modeling, and feedback) on staff implementation of the first three phases of PECS in a university clinic (with generalization probes in a habilitation agency). Three undergraduate students participated in this study. The intervention included several components: video model, verbal training, written training, live model,

and feedback. Their findings suggest participants met the mastery criterion (80% correct) after several hours of training (range = 130:56 minutes-208:28 minutes); however, the extent to which the improved staff behavior impacted client outcomes remains unknown. Nevertheless, this study is a significant contribution to the literature because it taught undergraduate students to correctly implement a complex skill set, specifically the Picture Exchange Communication System. Moreover, this study, in combination with the study conducted by Collins et al. (2009), provides the foundation for the current research.

Purpose Statement and Research Questions

There are at least five common problems faced by community services providers: high-support staff turnover, low-pay for direct support staff (which contributes to turnover), large supervisor caseloads, minimal credentials or prior training as requirements for employment, and challenging clients. These are difficult barriers to effectively and efficiently training direct support staff to implement complex behavioral interventions with fidelity. Nevertheless, the use of video models as a training tool is promising. Researchers have demonstrated the effectiveness of video models in structured settings with professional and/or paraprofessional staff and more recently with direct support staff. It is unclear, however, if the results in previous studies that taught staff complex skills (e.g., PECS) are replicable in less structured environments, such as residential group home settings, where there is minimal supervisor oversight. Group homes are challenging research environments; however, it is essential that staff training interventions be demonstrated to be effective in the environment where these skills are actually applied with clients. It is also unclear if video-modeling will increase staff's correct implementation of the PECS or, if not, what additional components will be

necessary. Further, if the results are replicable, there still remains questions about the extent to which these skills will maintain over time or lead to desired client outcomes.

These studies extend previous research in several ways. Perhaps, most importantly, these studies include data on client performance and target staff members in group home settings. In addition, the training sessions, generalization probes, and maintenance sessions were all conducted in a group home where the staff are employed. This research answers the following four research questions:

1. To what extent does a video modeling intervention, including completing a quiz after viewing the video model, increase the percentage of correctly implemented PECS training steps by direct-support staff working in a community residential setting with individuals who have intellectual disabilities?
2. Given improved staff performance in teaching training sessions with clients, to what extent do these skills maintain over time?
3. Given improved staff performance, to what extent does staff implementation lead to improved client outcomes (e.g., increased percentage of correct exchanges)?
4. To what extent do staff participants find the procedure useful?

GENERAL METHODS

Materials

Picture Exchange Communication System (PECS)

The training focused on a staff member's ability to implement a communication system known as PECS. The Picture Exchange Communication System (PECS) has been used to teach alternative communication skills to people with language delays. PECS is a six phase communication training system used in various settings (e.g., schools, homes) with high rates of success (see Table 1 for a description of PECS phases). For example, Anderson, Moore, and Bourne (2007) evaluated the effects of PECS on the communication skills of a child with autism and found an increase in initiations, requests, and cumulative word counts.

The written instructions for Phases I and II of the PECS training sessions used in these studies are based directly on the PECS training manual (Frost & Bondy, 2002). To ensure staff could successfully implement sessions only using written instructions, research assistants implemented sessions with several clients not participating in the study and recorded any questions or concerns. Then, the written instructions were revised to address those concerns. For example, one set of instructions in the PECS manual reads, "…and reinforce after the fifth trial." Research assistants were unclear if they should reinforce with the pictured item or some other reinforcer. The written instructions were revised to clarify exactly what staff should use as the reinforcer.

Each phase of the PECS curriculum builds on skills from the previous phase and requires a high degree of treatment integrity. These studies focus on the first two phases

Table 1

Description of PECS Phases

PECS phase	Brief description
Phase I: The Physical Exchange	The purpose of this phase is to teach clients to request an item by picking up a picture and giving it to a communicative partner.
Phase II: Expanding Spontaneity	The purpose of this phase is to teach clients to go to their communication board/book, remove a picture, and take it to their communicative partner.
Phase III: Picture Discrimination	The purpose of this phase is to teach clients to discriminate preferred from non-preferred pictures/items, select the desired picture, and take it to their communicative partner.
Phase IV: Sentence Structure	The purpose of this phase is to teach multi-word phrases. The client chooses the phrase, "I want" and the picture of the desired item, then gives the complete sentence strip to their communicative partner.
Phase V: Responding to "What do you want?"	At this phase, the client can spontaneously request a variety of items. The purpose of this phase is to teach the client to answer the question, "What do you want?"
Phase VI: Responsive and Spontaneous Commenting	At this phase, the client appropriately answers, "What do you want?" The purpose of this phase is to teach responses to additional questions (e.g., "What do you see?" "I see…").

of PECS. Phase I teaches clients the physical exchange. Phase II focuses on the client retrieving a picture from their communication binder and giving it to the direct-support staff. (See appendices A and L for detailed rules and procedures for each phase.)

Video Model

The video models for each phase were burned on separate DVDs (meaning there was a Phase I DVD and a Phase II DVD). Video models consisted of actors engaging in a role-play using a script for Phase I and Phase II of PECS (see Appendices P and Q) and each model lasted approximately 3-6 minutes. The video model was filmed in a home similar to the homes where the staff work. The Phase I video had eight models of each step in the phase (e.g., female primary staff, female secondary staff, female client; male primary staff, female secondary staff, male client). The Phase II video had four models of each step in the phase (e.g., female staff-male client; male staff-male client). The viewed model was arranged to match the staff's work environment. For example, in Phase I, two female staff working with a female client, viewed the Phase I video model with a female primary staff, female secondary staff, and a female client. Or, for example, in Phase II, a male staff working with a male client viewed the video model with a male staff and male client.

Other Materials

Additional materials included individualized PECS binders for the target clients, a television or computer with DVD player, written instructions for Phase I and Phase II of PECS, a Phase I PECS quiz and a Phase II PECS quiz (see Appendices I, J, K, and O). It is important to note, upon completion of the research, the data collector will no longer be

prompting the use of the video model; therefore, the pairing of a quiz with the video model is intended to be a mechanism for the agency to hold staff accountable for viewing the video model once the study is complete.

Target Behavior Definitions (Dependent Variables) and Measurement

Data Collector Selection and Training

Data collectors were employees of the community provider and worked as the behavior analyst's assistants. They were trained by the researcher on operational definitions and data collection procedures. Training included watching video training sessions and collecting data on participant and client data. Data collectors received feedback and continued training until they scored 90% IOA or better during three consecutive training sessions.

Measurement and Procedures

Data collectors collected staff and client data during each training session. Data collectors recorded staff responses using a checklist (see Appendices B, C, D, and M) and calculated a percentage correct for each trial. They also collected and reported client data using a per opportunity measure for correct use of picture exchange (see Appendices E and N). Data on the occurrence of problem behavior was also calculated using a frequency measure (see Appendices F, G, and H).

Staff Data (i.e., the Primary Dependent Variable)

During each session, the observer scored whether the staff members correctly implemented each of the PECS training steps. For example, there are three steps in Phase I of the PECS. First, the primary staff member sets up the training environment: (A)

primary staff member and client are seated at a table, facing each other; (B) secondary staff member is seated behind the client; (C) primary staff member has a variety of pictures that are the client's "preferred items" and their corresponding items (i.e., if the staff has a picture of the client's "highly preferred" snack, they will also have the actual snack available to use as the immediate reinforcer); and (D) primary staff member places the highly preferred item out of reach with the picture of the item between the person and the actual item and says, "pick one." Second, the primary staff member implements the fully assisted exchange training procedures: (A) as the client reaches for the item, the secondary staff assists the client to pick up the picture, reach to the primary staff member, and release the picture in the primary staff member's hand; and (B) as soon as the picture touches the primary staff member's hand, the primary staff member identifies the request (e.g., "oh, you want a chip!") and provides access to the item. And third, the prompts are faded: (A) once the client is completing the exchange, the secondary staff fades their physical assistance, and (B) once the client is completing the exchange without prompts from the secondary staff, the primary staff fades the "open hand" cue.

Client Data (i.e., the Secondary Dependent Variable)

Two types of client data were collected. First, the observer scored the percentage of correct picture exchanges. Second, if picture exchange is used to teach a replacement behavior (i.e., a behavior the client will engage in instead of a problem behavior), the observer also documented the frequency with which the target behavior(s) occurred during the training session.

Social Validity Data

Prior to participating in the study, staff members answered the questions, “What is my role as a staff member?” and “How does the client communicate with others?” Following participation in the study, staff members answered a series of follow-up questions:

1. What is my role as a staff member?
2. What are the main ideas I learned through the training experience?
3. What was difficult about the experience?
4. What was helpful about the experience?
5. What is your opinion about being trained on interventions using video models?
6. From your perspective, did/will the training make a difference in the life of the client?

EXPERIMENT 1

Methods

Participants

Eight staff members (i.e., four dyads) working with five different clients in a community residential program participated. Each staff member in the dyad was designated either primary staff member or secondary staff member and once they were designated as primary or secondary staff, they continued in that role for the duration of the study (meaning the primary staff never acted as the secondary staff and vice versa). Staff were selected based on four criteria: (1) employed by residential provider for at least one month (range = 1.5 months – 6.5 years), (2) work with a client who needs PECS training, (3) have high school diplomas or a GED, and (4) no formal academic training in behavior analysis. Staff and clients' legal guardians gave consent to participate in the study.

Setting

Sessions were conducted in the living room or kitchen areas of four group homes. Two or three clients with intellectual disabilities resided in each home and at least one client in the home participated in PECS training sessions as part of his/her behavior support plan. All clients (i.e., Ava, Brenna, Derrik, and Eli) have a diagnosis of an intellectual disability (previously termed mental retardation) and/or autism.

Interobserver Agreement on Staff Member Performance

Interobserver agreement was assessed for the primary staff during 45% of sessions and for the secondary staff during 43% of sessions. Point-by-point agreement

was calculated by dividing the total number of agreements by the total number of agreements and disagreements and multiplying by 100%. Mean agreement for primary and secondary staff in Phase I was 84.21% and 91.56% , respectively.

Interobserver Agreement on Client Behavior

Interobserver agreement on client behavior was assessed during 45% of sessions with clients. For correct picture exchanges, point-by-point agreement was calculated by dividing the total number of agreements by the total number of agreements and disagreements and multiplying by 100%. For the occurrence of problem behavior, IOA was calculated using a frequency/ratio (i.e., small frequency divided by larger frequency multiplied by 100%). Mean agreement for client data was 87.61%.

Treatment Integrity Data

Treatment integrity was assessed during 95.8% of sessions (see Appendix P). The treatment integrity data collector scored if the session was prompted by the data collector, if the staff member was prompted to watch the video model, and if any additional feedback was given to the staff member before, during, or following the session. Treatment integrity was 99.7% for all sessions across participants. Interobserver agreement on treatment integrity was assessed during 41% of sessions and mean agreement was 99.85%.

Procedure

Experimental Design

Experimental control was demonstrated using a nonconcurrent multiple baseline design across four dyads. Experimental decisions (e.g., phase changes) were based on

the primary staff member's data. Participants moved from the intervention phase to the maintenance phase after reaching the mastery criterion of 80% correct for three consecutive sessions.

Pre-Baseline

Prior to the start of the study, staff members were trained on Phase I of the PECS training procedures by the behavior analyst. Staff members were also trained on Preference Assessment procedures as recommended in the PECS manual. The training included approximately 20 minutes of verbal instructions (i.e., review of the written instructions), opportunity for questions, and access to the written instructions. Moreover, staff members completed written competency tests individualized for their target client's behavior support plan. This training is part of the agency's standard employee training.

To control for reactivity to measurement, research assistants visited clients' homes prior to the study and conducted observations while the participating staff members were on shift. Moreover, while in the home, the research assistants set up video recorders. During these observations, research assistants initially informed direct-support staff members and clients that they were there to observe and otherwise interacted minimally with staff members or clients.

Baseline Condition

During baseline, staff members had access to written PECS procedures; however, there was no contingency in place requiring them to read or review the procedure. When the data collector arrived at the group home, he/she set up the video camera and prompted the staff members to engage in a Phase I PECS training session with the target client

(e.g., “Show me the Preference Assessment with Ava,” and “Show me the Phase I PECS training with Ava”). These were the only prompts provided to the staff members. The Phase I session ended after five trials or after 10 minutes elapsed, whichever occurred first.

For one dyad, we conducted generalization probes to a second client. During baseline, two generalization probes were conducted. The procedures were the same as for the target client (i.e., the data collector prompted the staff to engage the generalization client in a PECS training session). Client data (i.e., correctly used pictures as well as problem behavior data) were collected during probe sessions.

Video Modeling

During the treatment phase, conditions were identical to baseline except the staff members viewed the Phase I video model and completed a brief quiz identifying the crucial components required in that phase, prior to beginning the PECS training session. It is important to note, staff members scored their own quiz and did not receive any feedback on their quiz performance. The data collector’s prompt was similar to “Watch the video, complete the quiz, correct the quiz, and show me the Phase I training session (or Preference Assessment) with Ava.” No other instruction, prompting, or feedback was provided. Once staff members met the performance criterion (i.e., 80% or more correct) for three consecutive sessions, they entered the maintenance condition of the current PECS phase.

For one dyad, we conducted generalization probes to a second client. During treatment, one generalization probe was conducted. The procedures was the same as for the target client in the baseline condition (i.e., the data collector prompted the staff to

engage the generalization client in a PECS training session). No other instruction, prompting, or feedback was provided, meaning the staff members did not view the video model or take the quiz prior to engaging the client in the training session. Client data (i.e., correctly used pictures as well as problem behavior data) were collected during the probe session.

Maintenance

At least one maintenance probe was conducted for each staff after video modeling sessions were completed: 7- week maintenance probe for Ava's staff, 1-4 week maintenance probes for Brenna's staff, and 6- week maintenance probe for Derrik's staff. The maintenance probes were conducted in the same setting as the baseline and intervention sessions and the prompts were the same as in the baseline condition (i.e., the data collector prompted the staff member to initiate a PECS training session with the target client and no other prompts or feedback were given). During maintenance probes, the video model was not available. Data were collected on staff performance and client responses.

Results

Primary Staffs' Results

Figure 1 shows the primary staffs' percentage of correctly implemented Phase I PECS steps for each of the four staff member dyads paired with clients (Ruby, Ava, Brenna, Derrik, and Eli) during each session. During the baseline condition (i.e., written instruction), prior to the use of video modeling, a mean percentage of 64.59% (ranging from 7.6%-72.94%) of the PECS Phase I training steps were implemented correctly.

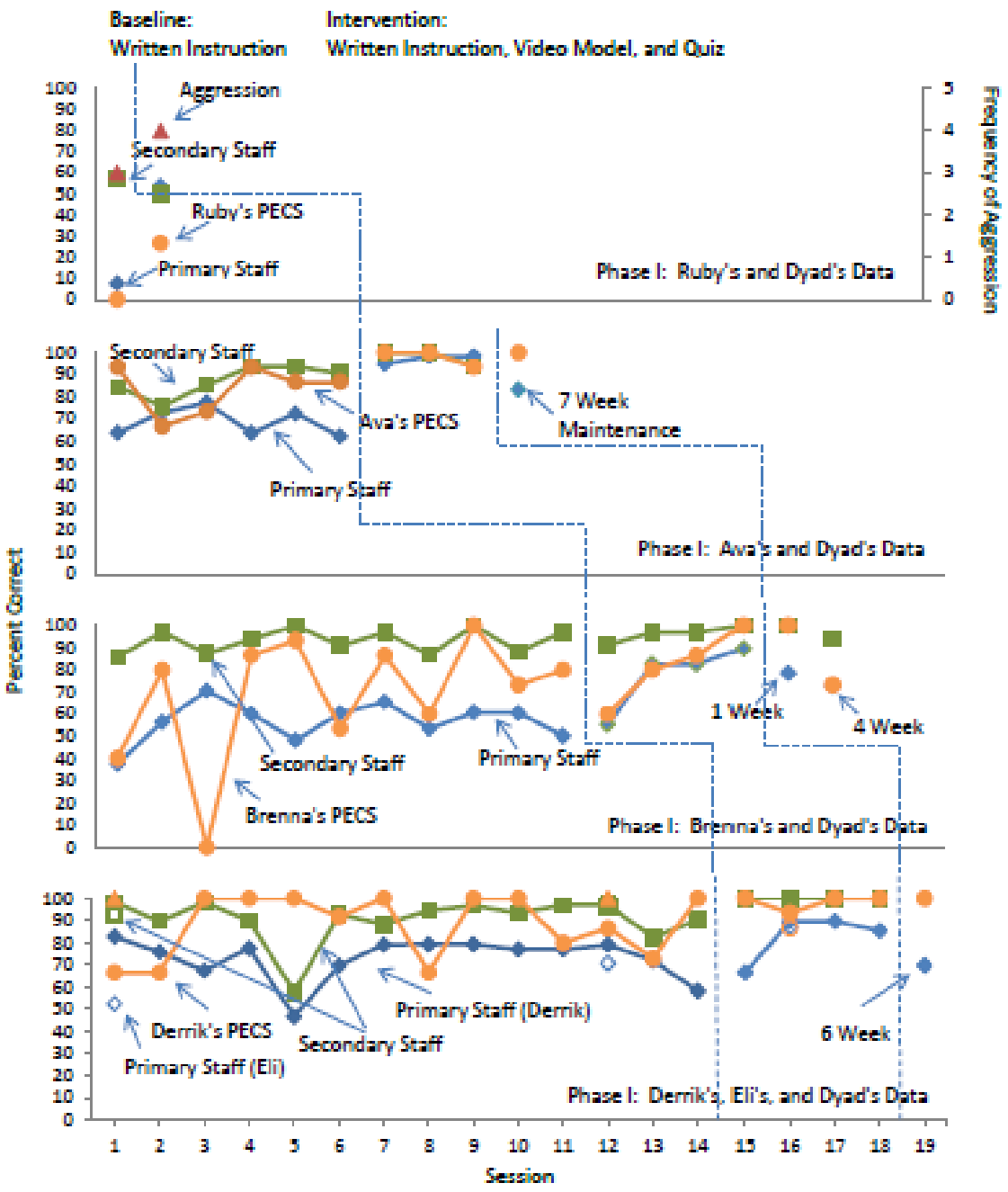

Figure 1. The effects of the video modeling intervention on staff's correct implementation of PECS Phase I and corresponding percentage of client's correct picture exchanges: Ruby (upper panel), Ava (upper-middle panel), Brenna (lower-middle panel), and Derrik and Eli (lower panel).

After implementing the video model and quiz, the mean percentage of correct implementation increased to 82.15% (ranging from 53.4%-98.2%).

Ruby's primary staff data was the first leg in a non-concurrent multiple baseline design. The percentage of correctly implemented PECS steps for Ruby's primary staff increased from 7.6% to 53.4%, while the other staff remained at baseline levels. After implementing video modeling and quiz with Ava's staff, the percentage of correctly implemented PECS steps increased from a mean score of 68.72% to a mean score of 97.03%, while Brenna's and Derrik's staff remained at baseline levels. After Brenna's staff began viewing the video model, the level of treatment integrity increased from 56.59% to a mean score of 77.53%, while Ava's staff's data remained at high levels and Derrik's staff's data remained at baseline levels. Finally, when Derrik's staff moved to intervention, the percentage of correct implementation increased from a mean score of 72.94% to a mean score of 82.8%. Both Ava's and Brenna's staff remained at high levels. All four primary staff members showed an increase in correct implementation of PECS procedures after the introduction of the video model and quiz intervention procedures.

Ruby's Results

Ruby's primary staff completed only 7.6% of steps correctly in the baseline condition of PECS Phase I (see upper panel of Figure 1). The percentage correct increased to 53.4% following intervention. Simultaneously, Ruby's correct picture exchanges increased from 0% in baseline to 36.6% in intervention. Ruby's secondary staff, however, went from 57% correct to 50% correct. This is likely because the opportunities for the secondary staff to respond increased in relation to the primary staff's

correct presentation of stimuli. It is also important to note that during the first session, staff provided Ruby access to large food items (as opposed to breaking them into smaller pieces). Because of concerns about the quantity of food she could consume in subsequent sessions, she and her staff were moved to the intervention condition. During the intervention condition, staff made marked improvements in treatment fidelity. Unfortunately, when staff presented smaller pieces of edibles (after the previous experience with large edibles), the occurrence of Ruby's aggression increased in frequency and intensity. When Ruby's behavior escalated, staff offered her breaks and discontinued sessions. Although we cannot say there is a direct relationship with only two data points, we were concerned about staff shaping up escape maintained aggression (as this has been a maintaining function of her aggression in other antecedent conditions). Therefore, we discontinued running sessions with Ruby and her staff.

Ava's Results

The upper-middle panel of Figure 1 illustrates the results of Ava's dyad's performance. During the baseline condition of Phase I of the PECS program, Ava's primary and secondary staff's mean scores were 68.72% and 87.12%, respectively. After viewing the video model and taking the quiz, their scores increased to 97.03% (primary staff) and 97.9% (secondary staff). Likewise, as staff's scores improved, the percentage of Ava's correct picture exchanges also increased from a mean score of 83.3% in baseline to 97.7% in intervention. During a seven week maintenance probe, the primary staff's implementation of the preference assessment and Phase I procedures decreased; however, they remained above the mastery criterion and were 96% and

83.1%, respectively. Additionally, Ava's correct exchanges remained high, 100%, during the maintenance probe.

Brenna's Results

The extent to which Brenna's staff correctly implemented Phase I of the PECS procedures after viewing the video model and taking the quiz is evidenced by an increase in mean percent correct from 56.59% in baseline to 77.53% in intervention (see lower-middle panel of Figure 1). Although the primary staff did not meet the mastery criterion during the one week and four week maintenance probes (78.7% and 72.9% correct), the percent correct remained above baseline. Because Brenna had moved to the next phase of PECS, additional booster sessions were not conducted.

Brenna's secondary staff performed at mastery criterion during the baseline session (mean = 93.09); however, there was a lot of variability in responding. After viewing the video model and completing the quiz, she responded more consistently and the mean percent correct increased to 96.23%. During the one week maintenance probe, the secondary staff implemented 100% of steps correctly and during the four week maintenance probe implemented 94.1% of steps correctly.

And like Ruby's and Ava's staff, as Brenna's staff implemented the PECS procedures with increased fidelity, Brenna's percent of correct exchanges increased from a mean of 68.47% to 81.65% and increased to 100% during the one week maintenance probe. During the four week maintenance probe, Brenna's correct exchanges decreased to 73.3% correct. It is possible this decrease can be attributed to Brenna moving through several steps of PECS Phase II, before the second Phase I maintenance probe was

conducted. Additional maintenance probes were not conducted because Brenna had met the criterion to move to the next Phase.

Derrik's Results

The lower graph in Figure 1 illustrates the extent to which Derrik's staff members implemented Phase I of PECS with fidelity. Derrik's primary staff implemented the procedures fairly well during the baseline condition; in fact, he was near mastery criterion during six of the last eight baseline sessions and his average percent correct during the condition was 72.94%. After the intervention, there was a slight increase from the final baseline session. However, during the second intervention session there was a more noticeable increase (from 66.6% correct to 89.6%). His average percent correct increased from 72.94% in baseline to 82.8% in intervention. During generalization probes with Eli, the primary staff's improvement was similar, increasing from a mean percent correct of 61.65 in baseline to 87.2% correct in intervention. During the primary staff's six week maintenance probe, the percent correct decreased to 69.8%. Unfortunately, booster sessions could not be conducted with Derrik's primary staff because Derrik had moved to Phase II of PECS and was working with the same staff member. Additional Phase I sessions (including booster sessions) could have impacted Derrik's performance and his staff's correct implementation of Phase II steps.

Derrik's secondary staff did meet mastery criterion during all but one baseline session. Nevertheless, the secondary staff's data had some variability (ranging from57.8% correct to 98.2%, with a mean of 90.4%). After viewing the video model, the staff member's performance increased to 100% and maintained at 100% during all

intervention sessions. During generalization probes with Eli, the secondary staff's data increased from a mean of 95% correct in baseline to 100% correct in intervention.

Derrik's percent correct increased from a mean of 87.93% in baseline to 98.33% in intervention. And, during the six week maintenance probe, Derrik's percent correct was 100%. Eli's percent correct, however, decreased from 100% to 86.6%. During the first two generalization probes (baseline condition) Eli did not require prompts; however, during the first trial of the probe conducted during the intervention phase, the secondary staff provided a full physical prompt. After which, Eli responded correctly during all subsequent trials in the session.

EXPERIMENT 2

Methods

Participants and Setting

Three primary staff members (from Experiment 1) working with three different clients in a community residential program participated. Staff were selected because the target client successfully completed Phase I of the PECS training. Staff and clients' legal guardians gave consent to participate in the study. Sessions were conducted in the same setting as described in Experiment 1.

Interobserver Agreement on Staff Member Performance

Interobserver agreement was assessed during 39.5% of sessions and point-by-point agreement was calculated by dividing the total number of agreements by the total number of agreements and disagreements and multiplying by 100%. Mean agreement was 90.8% across participants.

Interobserver Agreement on Client Behavior

Interobserver agreement was assessed during 39.5% of sessions with clients. For correct picture exchanges, point-by-point agreement was calculated by dividing the total number of agreements by the total number of agreements and disagreements and multiplying by 100%. Mean agreement for picture exchanges was 94% across participants.

Treatment Integrity Data

Treatment integrity was assessed during 85.3% of sessions. An observer scored if the session was prompted by the data collector, if the staff member was prompted to watch the video model, and if any additional feedback was given to the staff member before, during, or following the session. Treatment integrity was 99.17% across participants. Additionally, interobserver agreement on treatment integrity was assessed during 23.7% of sessions and mean agreement was 100%.

Procedure

Experimental Design

Experimental control was demonstrated using a nonconcurrent multiple baseline design across three staff member participants. Participants moved from the intervention phase to the maintenance phase after reaching the mastery criterion of 80% correct for three consecutive sessions.

Pre-Baseline

Prior to the start of the study, staff members were trained on Phase II of the PECS training procedures by the behavior analyst. The training was similar to the pre-baseline training provided in Experiment 1 and was part of the agency's standard training.

Baseline Condition

During baseline, staff members had access to written PECS procedures. When the data collector arrived at the group home, he/she set up the video camera and prompted the staff members to engage in a Phase II PECS training session with the target client, "Show me the Phase II PECS training with Ava." This was the only prompt provided to

the staff members. The session ended after five trials or after 10 minutes elapsed, whichever occurred first.

Video Modeling

During the treatment phase, conditions were identical to baseline except the staff members viewed the Phase II video model and completed a brief quiz identifying the crucial components required in that phase, prior to beginning the training session. No other instruction, prompting, or feedback (including feedback on their quiz performance) was provided. Once staff members met the performance criterion (i.e., 80% or more correct) for three consecutive sessions, they entered the maintenance condition.

Maintenance

At least one maintenance probe was conducted for each staff after video modeling sessions were completed: 2- week maintenance probe for Brenna's staff and 4- week maintenance probes with Ava's and Derrik's staffs. The maintenance probes were conducted in the same setting as the baseline and intervention sessions and the prompts were the same as in the baseline condition (i.e., the data collector prompted the staff member to initiate a Phase II PECS training session with the target client and no other prompts or feedback were given). During maintenance probes, the video model was not available. Data were collected on staff performance and client responses.

Results

Primary Staffs' Results

Figure 2 shows the percentage of correctly implemented Phase II PECS steps for each of the staff members paired with Brenna, Ava, and Derrik during each session.

Figure 2. The effects of the video modeling intervention on primary staff's correct implementation of PECS Phase II and corresponding client's correct picture exchanges for Brenna (upper panel), Ava (middle panel), and Derrik (lower panel).

During the baseline condition, prior to using the video model and quiz, a mean percentage of 57.07% (ranging from 51.15%-65%) of the PECS Phase II training steps were implemented correctly. After implementing the intervention, the mean percentage increased to 84.93% (range = 69.8%-97.2%).

Brenna's staff's data was the first leg in the non-concurrent multiple baseline design. The percentage of correctly implemented PECS steps increased from a mean score of 65% (baseline) to a mean score of 93.9% (intervention), while Ava's and Derrik's staff remained at baseline levels. It is also interesting to note that Ava's staff met the mastery criterion of 80% correct for three consecutive sessions within the first three sessions and the percent correct maintained at 98.4% during the two week maintenance probe.

After Ava's staff began viewing the video model and taking the quiz, the percentage correct increased from a mean score of 62.62% to a mean score of 95.3%, while Brenna's staff's data remained at high levels and Derrik's staff data remained at baseline levels. And like Brenna's staff, Ava's staff met the mastery criterion during the first three intervention sessions and her percent correct remained above the criteria during the four week maintenance probe (i.e., 88.8% correct).

Finally, when Derrik's staff moved to intervention, the percentage of correct implementation increased from 51.15% correct to a mean score of 77.66%. Both Brenna's and Ava's staff remained at high levels. His staff's percent correct during the four week maintenance probe remained high at 86.7%. All three staff members showed an increase in correct implementation of intervention procedures after the introduction of the video model and quiz procedures.

Brenna's Results

During the baseline condition of PECS Phase II (see upper panel in Figure 2), Brenna's staff's data was fairly stable with a mean of 65% correct (Range = 57.8%-69.4%). Once the video model and quiz were introduced, the percent correct immediately increased to and remained above mastery criterion during the first three sessions (Mean = 93.9%). This increase maintained during the two week maintenance probe as evidenced by staff correctly implementing 98.4% of steps.

Brenna's data for correct picture exchanges is not as clear. During the baseline condition, her data shows an increasing trend which continues during the first two sessions after her staff participates in the intervention. During the third session in the intervention condition, however, there is a drastic decrease in Brenna's percent correct. This is somewhat expected and is likely the result of the increased response effort required as Brenna's staff increased the distance between them and Brenna and Brenna and her picture binder. During the baseline sessions, the response effort was similar to the responses Brenna provided in PECS Phase I; however, as she continued to make progress, the correct response required more effort (i.e., actually standing and moving to her binder, then taking the picture to her staff member).

Ava's Results

The middle panel of Figure 2 illustrates that Ava's staff implemented procedures with an average of 62.62% correct during baseline (Range = 47.5%-75.3%). After the intervention, Ava's staff implemented procedures with an average of 95.33% correct (Range = 93.8%-97.2%) and met mastery criterion during the first three intervention

sessions. The staff's score remained above the mastery criterion at 88.8% correct during the 4-week maintenance probe.

Ava's correct exchanges demonstrate marked improvement after her staff implemented the procedures with increased fidelity. During baseline, Ava's correct exchanges ranged from 0% to 20% with a mean of 6.67%. During the intervention condition, Ava's correct exchanges increased to a mean of 53.3% (Range = 0%-100%). And, during the 4-week maintenance probe, Ava correctly exchanged 60% of her pictures, which indicates marked improvement from baseline.

Derrik's Results

Derrik's staff implemented Phase II correctly an average of 51.15% of opportunities in baseline (Range = 44%-62.6%) and there was a steady, slight decreasing trend (see lower panel of Figure 2). After viewing the video model and taking the quiz, there was a noticeable increase in level; however, he did not meet the mastery criterion until his eighth intervention session. Derrik's staff's mean score during the intervention condition was 77.66% (Range = 69.8%-83.3%). His score remained above the mastery criterion at 86.7% during the 4-week maintenance probe.

Derrik's data is variable in both the baseline and intervention conditions. As noted above in Brenna's results, as Derrik demonstrated progress in Phase II, the response effort increased. Each time his percent correct met the criteria, his staff increased the distance between Derrik and staff or Derrik and his picture binder or between both the staff and the binder. When staff initiated the increase, there seems to be a corresponding decrease in Derrik's correct responses. Generally, after a second or third session with the same criteria staff observed improvement in Derrik's correct exchanges,

which resulted in another distance increase during the next session. Perhaps, the most significant data point is Derrik's 4-week maintenance, which was 100% with the furthest distance between Derrik and staff and Derrik and his binder.

SOCIAL VALIDITY RESULTS

What Is My Role as a Staff Member?

Overall, staff members described their role in general terms. For example, "support, assist, and protect adults with disabilities" or "supervise and support people with disabilities." A few staff members were more specific and described their role "to encourage learning and growth" or "helping them to learn appropriate social behavior" or "help grocery shop, provide care during showering, implement behavior plans, and be a friend." After participating in the study, staff members provided similar responses and some also described their role as an instructor. For example, "I was responsible for following the instructions given [to train] the individuals I serve in a picture exchange communication system" or "to help individual learn PECS." One challenge in community settings is shifting staff's understanding of their role from caretaker to that of caretaker and instructor. Perhaps, the very systematic process of the study as well as the specific procedures aided a few staff to recognize this aspect of their role.

What Are the Main Ideas I Learned Through the Training Experience?

Staff members responded to this question summarizing the procedures of PECS Phase I or Phase II. For example, "…favorite items and treats were identified then pictures of those items were introduced. Individual gained access to item by handing picture to staff…" or "…by holding your hand out, the individual gives you a picture of the item, then you say item's name and provide them with it." One staff, however, responded differently saying, "I learned that training videos are far more effective in

assisting staff to follow a plan than written directions alone. Additionally, picture exchange is a powerful communication tool if it can be correctly implemented and well understood by those who use it. Picture exchange is also a difficult system to teach to someone…."

What Was Difficult About the Experience?

All but one staff member described the most difficult aspect of the research as the presence of the research assistants who were unable to provide feedback on staff's performance during or after sessions. In addition, one staff member stated "being quiet" was difficult and another stated watching the videos before each intervention session became repetitive and "boring."

What Was Helpful About the Experience?

Interestingly, all staff members identified the video models as the most helpful aspect of the research. One staff member wrote, "After watching the videos, the questions became clear, and the training went much better. The videos also had separate situations, which was extremely helpful in the later phase."

What Is Your Opinion about Being Trained on Interventions Using Video Models?

Given that the video models were identified as the most helpful aspect of the research, staff generally stated they liked being trained with video models. One staff member wrote, "The videos were extremely helpful. They answered questions and showed a variety of situations." A second staff member wrote, "It was helpful especially to be able to see what the body language of staff should look like. It was good to see the

many different scenarios so staff would know how to react." In addition, it is of note that although one staff member liked the video models, there was evident preference for a live trainer: "I loved having visual examples, but I think a person in the presence of the trainee would have been easier."

From Your Perspective, Did/Will the Training Make a Difference in the Life of the Client?

Staff members either responded "maybe" or a definite "yes." Those staff who responded with maybe, seemed to think that the individuals current means of communication was sufficient (e.g., "[The person] communicated well in the first place"). Interestingly, when the staff members described the individuals' current means of communicating before the study began, it was evident that all client participants had minimal functional communication skills. For example, staff described that Brenna communicated using about 15 modified signs, leading staff, and making a few sounds like "eeee" to indicate sister or "hughkkt" to indicate brother. Ava's staff wrote that she communicated with a few words (e.g., mommy, car, hi), sounds, modified signs, gestures, and pulling staff. And, for Derrik, staff wrote he typically communicated using simple signs, gesturing/pointing, leading staff, or grabbing. On the other hand, one staff member who responded yes, elaborated saying, "when someone new to her is around she will be able to use the pictures to explain what she is asking for so there is less misunderstanding and less reason for inappropriate behavior.…"

DISCUSSION

The current studies replicate previous smaller scale studies with fidelity on a larger scale, extends results to a new setting and evaluates the effect of the staff intervention on client performance. It confirms previous research findings on using video models to teach more complex skills by demonstrating the effectiveness of this approach as a staff training tool to increase treatment integrity with direct support staff with minimal formal training (including academic training) in behavior analysis. In these studies, the video model and quiz intervention proved to be an effective method of training staff to implement PECS Phases I and II procedures. Prior to the baseline condition, staff members were trained on the procedures and provided written instructions. The written instructions were available during all baseline and intervention sessions; although, there were no contingencies in place requiring staff to review the written protocol. After viewing a 3- to 6- minute video model and completing a brief quiz, staff performance increased to criterion levels (i.e., 80% or better for three consecutive sessions). More importantly, as staff performance increased, client's data reflected increased skill acquisition. In addition, these results maintained over time and for one staff member generalized to a novel client. With regards to the maintenance data, in Experiment 1 staff members performed below the mastery criteria. As mentioned, at the time of the maintenance probe in Experiment 1, the staff members were already conducting Phase II sessions with clients, which likely impacted their performance on Phase I steps. This explanation seems even more plausible after evaluating the maintenance data in Experiment 2 (i.e., Phase II of PECS), where all three staff members performed above mastery criteria during their two or four week maintenance checks. Of

note, the video models were not available for the staff members during the maintenance sessions. However, in practice, the video model would be available to staff members at all times, so if staffs are not correctly implementing the procedures, the video would be available for additional training.

These studies further demonstrate that the use of video models, and in this case the use of a quiz after viewing the video model, is a practical means of training direct support staff to successfully implement complex training procedures (such as PECS) with a client in their natural environment. The use of technology also made the training available to staff members in different areas of the state. For behavior analysts challenged by geographical barriers, the successful use of technology in this study opens the door for further improvement of treatment programs for individuals living in rural areas and/or in areas where behavior analysts are not located locally.

In addition to the increases in staff performance and the ability to train in multiple locations, it is important to note potential gains in efficacy, including cost and time. As the state budgets often dictate client's funding, many agencies struggle to meet the demands of high quality staff training because of budget shortages. The use of video models significantly reduces the amount of training time required of the behavior analyst. Furthermore, the video model is always accessible to staff members in the home, so when there are new staff members they are able to train using the video models and when current employees need "booster" training, the model is easily accessible. The reduced amount of training time (for the behavior analyst and staff members), reduces the agency's training cost. The cost and time savings, makes it more practical for agencies to include these types of complex skill training interventions in residential, community

settings. This prospect is promising to individuals who have limited ability to appropriately express their daily wants and needs to their caregivers.

One limitation to this study is the pairing of the quiz with the video model. It is unclear if the video models alone would have produced the same effects. The purpose of the quiz was to provide the agency with a contingency to increase the probability of staff viewing the video models once the research was complete. This alludes to second limitation to this study (and other similar studies), which is the need to evaluate the establishing operations necessary to ensure the use of video models when a supervisor (or research assistant) is not on-site. Unfortunately, this variable is critical to the long-term success of video models as a training tool (meaning, the only way they are effective, is if they are actually viewed), yet by its definition it is extremely difficult to evaluate (essentially, it is virtually impossible to assess what staff members are doing when another observer is not present). One viable solution is the use of video conferencing in the homes. And although new technology is surfacing, aside from the financial barriers for community providers (e.g., paying for hardware, IT support, and internet services in literally hundreds of locations for large providers), current federal and state regulations (e.g., HIPAA) make this challenging. Nevertheless, recent discussions (at least in the state of Utah) provide some optimism about the future use of video conferencing in the homes.

A second limitation is that this study only evaluates the effectiveness of video models for Phase I and Phase II of the PECS. These steps, although complex, are just the foundation for establishing a communicative repertoire for individuals with language limitations. Therefore, it is essential that future research evaluate the effectiveness of

video models on additional phases of the PECS curriculum. In addition to evaluating the effects on other phases of PECS, future research should assess the effectiveness of video models in similar settings with other complex behaviors/staff skills.

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APPENDICES

Appendix A

PECS Phase I—The Physical Exchange

Appendix A: PECS Phase I—The Physical Exchange

Terminal Objective: Upon seeing a "highly preferred" item, the individual will **pick up** a picture of the item, **reach** toward the trainer, and **release** the picture into the trainer's hand.

REINFORCER ASSESSMENT PROTOCOL

1. Present individual with edibles (5-8 at a time), e.g., cookies, crackers, candy, chips.
2. Using SD voice say, "pick one." (The SD voice is a neutral or bored sounding voice.)
3. After individual picks one, staff **immediately** allow access to the item and clear other items from table so individual cannot grab additional items.
4. Let them have access to the item until it is consumed or if it is a non-edible for 10-15 seconds.
5. Mark the selected item on the data sheet.
6. Start the next trial.
7. Place all items on table in different order
8. Repeat steps 2 through 7.

Note: If one item is selected three times, remove most preferred item and continue with assessment until individual has chosen 3-5 "most preferred" items.

9. On your data sheet identify the 3-5 items that were selected most often. List them in rank order as "most preferred" items.
10. REPEAT this procedure using non-edibles (5-8 at a time), e.g., various toys, crayons, wind-up toys, dolls, action figures and items that are known to be valuable to this individual.
11. RE-ASSESS Using the "most preferred" edibles and non-edibles, conduct assessment again so that items can be rated as "highly preferred," "preferred," or "non-preferred".

PHASE 1 TRAINING PROTOCOL

TRAINING RULES

1. Present one picture at a time
2. Prompt at least 30 opportunities (5 Trials = 1 Session)

TRAINING PROCEDURES

1. **Training Environment**
   a. Two staff participate in trial
   b. One staff, the Communicative Partner, sits in front of individual.

   Note: The trainer in the front is in charge of conducting the entire assessment. This trainer needs to be in charge of keeping the flow and providing reinforcement.

   c. One staff, the Physical Partner, sits behind the individual.

   Note: The trainer sitting behind the individual should remain neutral throughout the assessment and only help if the individual is having difficulty picking up "preferred items," or placing "preferred items" into trainer's hand. This trainer is to refrain from talking, commenting, or any other behaviors that could be distracting.

   d. Place "highly preferred" item in front of individual, but slightly out of reach.
   e. Place picture of item on table between the individual and the desired item, say "pick one.".
2. **Step 1: Fully Assisted Exchange**
   a. As individual reaches for item, the physical partner physically assists individual to pick up the picture, reach to communicative partner, and release picture in communicative partner's open hand.
   b. As soon as picture touches open hand of the communicative partner, communicative partner says, "Oh, you want the ball!!!" (or whatever item was requested) AND hands individual the item.
   c. At the same time, the physical partner assists individual to release the picture.
   d. Reinforce for five (5) trials. Use a different "preferred item" every five or fewer trials.
   e. Troubleshooting:
      i. If individual does not reach for item after five trials, reassess to confirm that it is "Highly Preferred."

ii. If the individual is not attending, the communicative partner can use "attentional cues" (e.g., calling the individual's name, identifying available item "I have pretzels!").
iii. ***Caution:*** Remember, do not use direct prompts such as "Give me the picture" or "What do you want?"

3. **Step 2: Fade Physical Assistance**
   a. Same procedures as Fully Assisted Exchange, except the physical prompts are faded.
   b. Physical Fade 1:
      i. Communicative partner waits to say, "Oh, you want the ball!!!" until the individual releases the picture into the open hand. Communicative partner simultaneously gives requested item to individual.
      ii. Continue Fade 1 until individual releases picture in open hand during 80% or more of trials.
      iii. ***Remember:*** Continue assisting individual to pick up picture and reach to communicative partner.
   c. Physical Fade 2:
      i. Physical partner prompts pick up picture and fades prompt to reach toward Communicative partner. Communicative partner shows individual open hand as soon as individual reaches for the item or the picture.
      ii. Continue Fade 2 until individual reaches to communicative partner and releases picture in open hand during 80% or more of trials.
   d. Physical Fade 3:
      i. Physical partner fades physical prompt (e.g., from full physical to partial physical to no prompt) to pick up picture.
      ii. Continue Fade 3 until individual, upon seeing communicative partner's open hand, picks up picture, reaches toward communicative partner, and releases picture in communicative partner's hand. Communicative partner says, "Oh, you want the ball!!!" and simultaneously gives ball to individual.

4. **Step 3: Fade the "Open Hand" Cue**
   a. Increase the amount of time between placing the item and picture on table and showing the individual an open hand.
   b. Communicative partner shows the individual an open hand as individual reaches toward the communicative partner.
   c. As soon as individual releases picture in communicative partner's hand, communicative partner says, "Oh, you want the ball!!!" and simultaneously gives ball to individual.
   d. Continue until individual picks up picture, reaches towards communicative partner, and releases picture in communicative partner's hand with communicative partner showing an open hand when individual reaches towards partner successfully during 80% of trials.

Appendix B

PECS Preference Assessment Data Collection

Appendix B: PECS Preference Assessment Data Collection

(adapted from Rosales, Stone, & Rehfeldt, 2009)

Client Name: _____
Primary Staff: _____ Secondary Staff: _____
Session: _____ Session Date: _____
Data Collector: _____ IOA: _____

Data Collection Key

Y = completed step correctly N = completed step incorrectly 0 = step did not apply

PREFERENCE ASSESSMENT—PRIMARY STAFF					
PRE-SESSION	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
1. Has training materials ready (i.e., preferred items)					
2. Has data sheet and writing utensil ready					
3. Ensures preferred items are out of participant's reach					
SESSION					
4. Presents 5-8 small edibles or toys/items					
5. Using SD voice, says, "pick one"					
6. Waits 5 seconds for the participant to respond					
7. Blocks attempts to take more than one item, waits 5 seconds, represents items in same order					
8. Provides access to preferred item for approximately 15-20 sec. OR until participant has consumed item in its entirety.					
9. Items selected (write the item)					
10. Correctly scores responses on data sheet immediately after each trial is complete.					
11. Removes other items while the participant plays with or consumes item.					
12. Rearranges order of items when presenting the next trial					
TRIAL TOTALS					
SESSION PERCENT CORRECT					

Appendix C

PECS Phase I Primary Staff Data Collection

Appendix C: PECS Phase I Primary Staff Data Collection

(adapted from Rosales, Stone, & Rehfeldt, 2009)

Client Name: _____
Primary Staff: _____ Secondary Staff: _____
Session: _____ Session Date: _____
Data Collector: _____ IOA: _____

Data Collection Key

Y = completed step correctly N = completed step incorrectly 0 = step did not apply

PHASE I—PRIMARY STAFF					
PRE-SESSION	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
1. Has training materials ready (binder, pictures of preferred items, preferred items)					
2. Has data sheet and writing utensil ready					
3. Ensures preferred items are out of participant's reach					
4. Selects items from training that have been previously identified as preferred in a stimulus preference assessment					
5. Ensures items are preferred by giving free access to training item before the 1st trial with that item					
SESSION					
6. Places ONE picture that corresponds to ONE preferred item in hand on the table directly in front of the participant					
7. Presents item to the participant, but out of his or her reach					
8. Using SD voice, says, "pick one" and presents open hand					
9. Uses dime-sized pieces if edibles are used.					
10. Once the participant has the picture in hand, waits for him/her to reach out					
11. Waits for the person to release the pictures (as opposed to taking the picture from the participant).					
12. Only provides the first verbal prompt (as opposed to providing additional prompts during session).					
13. When a correct response is emitted, provides appropriate reinforcement (i.e., praise and access to item).					

14. Correctly scores responses on data sheet immediately after each trial is complete.					
TRIAL TOTALS					
SESSION PERCENT CORRECT					

Appendix D

PECS Phase I Secondary Staff Data Collection

Appendix D: PECS Phase I Secondary Staff Data Collection

Client Name: _____
Primary Staff: _____ Secondary Staff: _____
Session: _____ Session Date: _____
Data Collector: _____ IOA: _____

Data Collection Key

Y = completed step correctly N = completed step incorrectly 0 = step did not apply

PRE-SESSION	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
1. Positioned behind or behind and to the side of the participant's dominate hand (i.e., the hand they're choosing from)					
2. No materials are near staff member					
SESSION					
3. When item is presented to client, waits 1-2 s for the participant to respond.					
4. If the participant does not reach for the picture, uses physical prompt (i.e., hand over hand) prompt.					
5. Once the participant has the picture in hand, waits for him/her to reach out, if client doesn't, then uses physical prompt to reach out to other staff.					
6. Does not provide verbal prompts at any time.					
7. Does not provide verbal feedback to client at any time.					
8. Does not provide verbal or nonverbal feedback to other staff member at any time.					
TOTALS					
SESSION PERCENT CORRECT					

Appendix E

PECS Phase I Client Data Collection

Appendix E: PECS Phase I Client Data Collection

PECS Phase I©

Person:							
Staff Initials	Date	Activity	Item	Pick-Up	Reach	Release	Open Hand
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No
				FP PP G +	FP PP G +	FP PP G +	YES No

FP= Full Physical Prompt	**PP** = Partial Physical Prompt	G = Gestural	+ = Independent
YES = The open hand is still visible		NO = The open hand has been faded	

Appendix F

PECS Phase I Ava's Target Data Collection

Appendix F: PECS Phase I Ava's Target Data Collection

Client Name: _____
Primary Staff: _____ Secondary Staff: _____
Session: _____ Session Date: _____
Data Collector: _____ IOA: _____

TARGET BEHAVIOR DEFINITIONS

BEHAVIORS OF CONCERN

1. **Self-injury:** As evidenced by
   a. Hitting her fingers on a **hard** surface (e.g., floor, wall);
   b. Hitting her head/face on a **hard** surface (e.g., floor);
   c. Hitting her back (swinging her arm around to hit herself);
   d. Slapping her face or neck; and/or
   e. Kicking her feet into the stairs or wall.
   f. **Data Collection:** This behavior is episodic. Therefore, we are estimating the occurrence (i.e., frequency and duration) of the behavior.
      i. **Onset:** An episode starts when Ava engages in the target behaviors.
      ii. **Offset:** It ends after two minutes without engaging in any of the identified behaviors. If she then engages in one of the defined behaviors, it is the beginning of the second episode.
2. **Physical Assault, Attempted or Actual:**
   a. **Actual physical assault** is defined as hitting with her closed fists, opened hand, or with any object, kicking, or biting.
      i. **Example:** It would be physical assault if Ava bites staff's arm.
      ii. **Nonexample:** It would not be physical assault if she gently patted someone's back or gave someone a high five, where there is no intent to injure.
   b. **Attempted assault** is defined as engaging the behaviors defined as physical assault without Ava making physical contact because: 1) the target of the assault is able to move out of the way, or 2) the assault is prevented/blocked by another person.
      i. **Example:** It would be attempted assault if Ava put her mouth on staff's arm and staff moved their arm so she was unable to bite.
      ii. **Nonexample:** It would not be attempted assault if Ava was swinging her fists at you and she is far enough away from you that she cannot make contact with you.
   c. **Data Collection:** This behavior is episodic. Therefore, we are estimating the occurrence (i.e., frequency and duration) of the behavior.
      i. **Onset:** An episode starts when Ava engages in the target

behaviors.

ii. **Offset:** It ends after two minutes without engaging in any of the identified behaviors. If she then engages in one of the defined behaviors, it is the beginning of the second episode.

3. **Agitation:** As evidenced by glaring, grimacing, repeating words in a harsh tone (e.g. "mommy," "pop"), moaning, and/or screaming.
Data Collection: This behavior is episodic. Therefore, we are estimating the occurrence (i.e., frequency and duration) of the behavior.

a. **Onset:** An episode starts when Ava engages in the target behaviors.
b. **Offset:** It ends after two minutes without engaging in any of the identified behaviors. If she then engages in one of the defined behaviors, it is the beginning of the second episode.

ADDITIONAL INFORMATION

1. **Non-Exclusionary Time-Out:** As evidenced by the total duration of time during the month that Ava is asked to sit in the break chair or go to her bedroom after an incident of physical assault and/or self-injury.

2. **SOAR Training:** It is strongly recommended when Ava's staff is certified for SOAR training procedures the manager should ask the trainer to emphasize techniques that address biting others (physical assault, not necessarily self-injury) and injury during head banging.

Date	Trial	Self-Injury	Physical Aggression	Agitation	Time-Out	SOAR

Appendix G

PECS Phase I Brenna's Target Data Collection

Appendix G: PECS Phase I Brenna's Target Data Collection

Client Name: _____
Primary Staff: _____ Secondary Staff: _____
Session: _____ Session Date: _____
Data Collector: _____ IOA: _____

TARGET BEHAVIOR DEFINITIONS

BEHAVIORS OF CONCERN

Physical Aggression: As evidenced by Brenna assaulting staff (e.g., hitting with an open hand, closed fist, or with an item; biting; pulling hair) and/or engaging in self-injury (e.g., hitting her head, banging elbow into wall, kicking her heels into the ground).

A. **Onset** of an incident of physical aggression is evidenced by engaging in the defined behavior.

B. **Offset** is evidenced by showing calm hands and counting to 20 (see support plan procedures below).

C. **Data Collection Example:** If Brenna grabs staff, this is the onset of an incident. If she continues to engage in aggression, this is the same incident. If Brenna counts to 10 and then grabs staff, this is the same incident. If Brenna counts to 20, this is the offset of the incident. On her data sheet, staff mark one tally mark in the Frequency of Physical Aggression column. If Brenna grabs staff immediately after counting to 20, this is the onset of a second incident of physical aggression….staff mark two tally marks in the Frequency of Physical Aggression column. If Brenna continues to grab staff immediately after counting to 20, staff will put a tally mark for each time she counts to 20 and grabs staff, but the duration will be the total time of all the incidents. Therefore, if she counts to 20 and does not grab staff, the duration of the incident is documented. If, three minutes later, she grabs staff, staff document this incident and duration on the next row of the data sheet.

Date	Trial	Physical Aggression	Time-Out	SOAR

Appendix H

PECS Phase I Ruby's Target Data Collection

Appendix H: PECS Phase I Ruby's Target Data Collection

Client Name: _____
Primary Staff: _____ Secondary Staff: _____
Session: _____ Session Date: _____
Data Collector: _____ IOA: _____

TARGET BEHAVIOR DEFINITIONS

BEHAVIORS OF CONCERN

1. **Precursor Behavior:** As evidenced by pulling/tugging on her shirt, kicking her leg, throwing her food, lifting or throwing items on the wall, looking away and avoiding eye contact, and/or signing "mad."
    a. **Example:** It would be precursor behavior is Ruby is tugging on her shirt.
    b. **Nonexample:** It would not be precursor behavior if Ruby rips her shirt (this is aggression, defined below).
2. **Angry Outburst:** As evidenced by ripping her shirt, hitting her head on the wall, throwing items, scratching others, and/or hitting staff with an open hand or closed fist.
    a. **Examples:** It would be angry outbursts if Ruby is getting ready to shower and rips the shower curtain down. It would be angry outburst if Ruby is sitting next to staff and scratches the staff members back.
    b. **Nonexamples:** It would not be angry outburst if Ruby lightly taps her head on the wall (this is a precursor behavior, as defined above).
    c. **Data Collection of Episodes:**
        i. **Onset** of an incident of aggression is evidenced by engaging in the defined behavior (e.g., ripping her shirt).
        ii. **Offset** is evidenced by a duration of 30 seconds (or more) without engaging in aggression, as defined.
        iii. **For example,** if Ruby grabs the shower curtain, this is the onset of an incident. If she continues to engage in aggressive behavior (e.g., lightly hitting head on wall, hitting staff), this is the same incident. On her data sheet, staff mark one tally mark in the "Frequency of Aggression" column. If Ruby grabs the shower curtain (onset of an incident), then appears calm for a duration of 30 seconds, and then hits staff, this is the onset of a second incident of aggression. On her data sheet, staff mark two tally marks in the "Frequency of Aggression" column.

OTHER INFORMATION

1. **Non-Seclusionary Time-Out:** As evidenced by the total duration of time during the month that Ruby sits in the break chair after an incident of

aggression.

2. **SOAR Restraints:** Frequency and duration of SOAR restraints used during the month.

Date	Trial	Precursor Behavior	Angry Outburst	Time-Out	SOAR

Appendix I

PECS Phase I Preference Assessment Staff Quiz

Appendix I: PECS Phase I Preference Assessment Staff Quiz

1. What items do you need to be ready **before** the trials begin?
    a. Preferred items are presented to the person
    b. 5-8 preferred items are out of the person's reach
    c. Data sheet
    d. 5-8 preferred items out of the person's reach, data sheet, and writing utensil

2. How many items are presented during the trials?
    a. 5-8 items, and once an item is chosen three times it is no longer presented to the person
    b. However many the staff member decides
    c. 1-2 items and every trial has different items
    d. As many as staff can find, the more the better

3. When a person chooses an item, what happens?
    a. The staff takes the item from them and says "good choosing"
    b. The staff provides access until the item, if edible, is consumed or until the person plays with the item, if non-edible, for 10-15 seconds and the staff member immediately removes all other items in the assessment and records the choice on the data sheet
    c. The staff provides access until the item, if edible, is consumed or until the person plays with the item, if non-edible, for 10-15 seconds and the staff member leaves the other items on the table in case the person changes their mind and wants something different
    d. The assessment ends

4. How are the items presented in each trial?
    a. If the person selected one item, then the items are presented in a different order during the next trial. If the person did not select an item OR tried to select multiple items, the items are removed, the staff waits five seconds, and then the items are re-presented in the same order.
    b. Each time the items are presented the order changes no matter how the person responds.
    c. Each time the items are presented the order stays the same no matter how the person responds.
    d. Staff randomly decide whether to keep the order the same or to change the order

5. If a person attempts to take more than one item, what happens?
    a. Staff allow access to both items and continue the assessment
    b. Staff block the attempt to take the items, remove the items, wait five seconds, then re-present the items in the same order
    c. Staff block the attempt and say "try again"
    d. Staff end the assessment

Appendix J

PECS Phase I Primary Staff Quiz

Appendix J: PECS Phase I Primary Staff Quiz

1. What items do you need to be ready **before** the trials begin?
    a. Allow person to have access to the preferred item until it is consumed (edible) or for about 10 seconds (non-edible), keep the additional preferred item (meaning more of the same preferred item) out of person's reach, pictures of preferred item, data sheet, and writing utensil
    b. 5-8 preferred items are out of the person's reach
    c. Data sheet
    d. Pictures of preferred items

2. How many items are presented during the trials?
    a. 2 or 3
    b. 5-8 preferred items
    c. 5-8 pictures of preferred items
    d. 1 picture of a preferred item (within the person's reach) and 1 preferred item (out of the person's reach) and at least every five trials present a different picture of a preferred item with the corresponding preferred item

3. When the person does not respond, what prompts do you provide?
    a. Repeat the prompt, "pick one"
    b. The only prompt is showing an open hand to accept the picture, there are no additional verbal prompts
    c. Point at the picture
    d. Tell the other staff to physically prompt the person

4. When the person picks up the card, reaches towards you, and gives the card, what happens?
    a. Provide the person with access to the item and provide verbal praise like, "oh, you want …", then record data
    b. Staff say, "thank you"
    c. Provide access to the item, but don't say anything
    d. The second staff leaves and comes back later

5. If a person throws the card or otherwise skips a step in the exchange, what happens?
    a. Staff say, "hey, that's not nice" and walk away
    b. Staff provide access to the item and keep moving through the training procedures
    c. Staff neutrally remove the picture of the item and the item, wait 5 seconds, and represent the items
    d. Staff end the assessment

Appendix K

PECS Phase I Secondary Staff Quiz

Appendix K: PECS Phase I Secondary Staff Quiz

1. What items do you need to be ready **before** the trials begin?
    a. Allow person to have access to the preferred item until it is consumed (edible) or for about 10 seconds (non-edible), sit behind the person, wait for the other staff to start trial
    b. 5-8 preferred items are out of the person's reach
    c. Data sheet
    d. Pictures of preferred items

2. What if the other staff member makes an error?
    a. Tell them how to fix it
    b. Just fix it for them
    c. Say nothing and finish the session
    d. Shake your head "no," and make a coughing sound to get their attention

3. When the person does not respond, what prompts do you provide?
    a. "pick one"
    b. The only prompt is a physical prompt to complete the step they need (e.g., if they haven't picked up the card, physically prompt them to pick up the card; if they don't reach to the other staff, physically prompt them to reach to the staff)
    c. Point at the picture
    d. Tell the other staff to physically prompt the person

4. When the person tries to grab the preferred item NOT the picture, what happens?
    a. Immediately physically prompt the person to get the picture of the preferred item (block their access to the item until they get the picture and hand it to the other staff)
    b. Provide the person with access to the item and provide verbal praise like, "oh, you want …", then record data
    c. Staff say, "nope, that's not right"
    d. Leave and comes back later

5. If a person throws the card or otherwise skips a step in the exchange, what happens?
    a. Frantically put their arms to their side and say, "hey, that's not nice" and walk away
    b. Staff provide access to the item and keep moving through the training procedures
    c. Stay neutral while the other staff neutrally removes the picture of the item and the item, wait 5 seconds, and represent the items
    d. Staff end the assessment

Appendix L

PECS Phase II—Expanding Spontaneity

Appendix L: PECS Phase II—Expanding Spontaneity

Terminal Objective: The individual goes to his/her communication binder, pulls the "preferred item" off, goes to the trainer, and releases the item into the trainer's hand.

PHASE II TRAINING PROTOCOL

TRAINING RULES

1. Staff do not use verbal prompts
2. Present a variety of pictures, one at a time
3. Prompt at least 30 structured trials each day
4. Create and prompt at least 30 spontaneous trials during the day

TRAINING PROCEDURES

1. Training Environment

a. Attach one picture of a highly preferred item via Velcro to the communication binder.
b. Have several preferred items available and their corresponding pictures.

2. Step 1: Removing Item

a. Allow the individual "free access" to one item to "set the stage."
b. After the individual has consumed the item or played with the item for 10-15 seconds, using SD voice say, "my turn" and remove the item out of the individuals reach.
c. Have the communication binder with a single picture of the item accessible on the table.
d. The individual is to remove the picture from the binder.

Note: If needed, use physical assistance to guide the individual to remove the picture.

e. Reach to the trainer.
f. And, release picture into the trainer's hand.
g. Once the individual releases the item into the trainer's hand, the trainer should immediately hand the item to the individual, stating what the item is (e.g., "apple," "ball") in an expressive voice.
h. Allow the individual access to the item for 10-15 seconds.

3. **Step 2: Increase Distance Between Trainer and Individual**

a. The individual begins the exchange: removes the picture from the communication binder and reaches for staff to release picture.
b. The picture remains CLOSE to individual and the trainer gradually moves further away (e.g., first the individual will need to reach to release picture and then eventually stand up and walk over to staff to release picture).

c. Once the individual releases picture, verbally praise the individual, and immediately provide access to item for 10-15 seconds (or until consumed if item is an edible).
d. As the individual maintains success at moving toward the trainer the distance between the individual and trainer should increase.
e. Reinforce the individual WHILE, not after, the exchange is completed.

Note: We are reinforcing them for the exchange.

4. **Step 3: Increase Distance Between Individual and Picture**
   a. Begin systematically increasing the distance between picture and the individual so that the individual must go to the picture and then go to the trainer to complete the exchange.
   b. Continue to reinforce as above.

Appendix M

PECS Phase II Staff Data Collection

Appendix M: PECS Phase II Staff Data Collection

(adapted from Rosales, Stone, & Rehfeldt, 2009)

Client Name: _____
Primary Staff: _____ Secondary Staff: _____
Session: _____ Session Date: _____
Data Collector: _____ IOA: _____

Data Collection Key

Y = completed step correctly N = completed step incorrectly 0 = step did not apply

PRE-SESSION	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
1. Has training materials ready (binder, pictures of preferred items, preferred items)					
2. Has data sheet and writing utensil ready					
3. Ensures preferred items are out of participant's reach					
4. Selects items from training that have been previously identified as preferred in a stimulus preference assessment					
5. Ensures items are preferred by giving free access to training item before the 1st trial with that item					
SESSION					
6. Places ONE picture in the binder that corresponds to ONE preferred item in staff's hand or on the table behind the binder on the table directly in front of the participant					
7. Presents item to the participant, but out of his or her reach					
8. Uses dime-sized pieces if edibles are used.					
9. Sits/Stands at least 1 ft. away from participant.					
10. If Phase II Step 1 or 2, places open binder on the table directly in front of participant.					
11. If Phase II Step 3, places closed binder a distance from participant.					
12. Waits 1-2 s for the participant to respond.					
13. If participant does not respond, gives gestural or physical prompt & waits 1-2 s for response.					
14. If the participant does not respond to initial prompt, uses full physical prompt.					
15. Once the participant has the picture in hand, waits for him/her to reach out, then opens one hand out to receive picture.					
16. Waits for the person to release the pictures (as opposed to					

taking the picture from the participant).					
17. Avoids giving verbal prompts at any time.					
18. When a correct response is emitted, provides appropriate reinforcement (i.e., briefly name and give access to item).					
19. Gives access to preferred item for approximately 10-15 s (takes item providing SD, “my turn”) OR until participant has consumed item in its entirety.					
20. Correctly scores responses on data sheet immediately after each trial is complete.					
21. Returns picture to table (or binder) while the participant plays with or consumes item.					
22. If participant has responded correctly & independently on 2-5 consecutive trials, moves 1 ft further away from participant.					
23. If participant has not responded correctly & independently for 2-5 consecutive trials, moves 1 ft. closer to participant on next trial.					
24. AFTER participant responded correctly & independently for at least 5 consecutive trial blocks with trainer 8 ft. away, moves binder at least 1 ft. away from participant.					
25. If participant has responded correctly & independently on 2-5 consecutive trials, moves binder 1 ft further away from participant.					
26. If participant has not responded correctly & independently for 2-5 consecutive trials, moves binder 1 ft closer to participant.					
TOTALS					

Appendix N

PECS Phase II Client Data Collection

Appendix N: PECS Phase II Client Data Collection
PECS Phase II©

Person:

Staff	Date	Activity	Item	Distance to CP	+ / -	Distance to Book	+ / -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -
				0-3 3-6 6-9 >9	+ -	0-3 3-6 6-9 >9	+ -

Circle the distance traveled. Distances are in feet

+ = moved the indicated distance independently	- = needed assistance from the physical prompter or required the backstep error correction procedure

Appendix O

PECS Phase II Staff Quiz

Appendix O: PECS Phase II Staff Quiz

1. What items do you need to be ready **before** the trials begin?
    a. Allow person to have access to the preferred item until it is consumed (edible) or for about 10 seconds (non-edible), keep the additional preferred item (meaning more of the same preferred item) out of person's reach, picture of preferred item in the binder, data sheet, and writing utensil
    b. 5-8 preferred items are out of the person's reach
    c. Data sheet
    d. Pictures of preferred items

2. How many items are presented during the trials?
    a. 2 or 3
    b. 5-8 preferred items
    c. 5-8 pictures of preferred items
    d. 1 picture of a preferred item is in the binder and 1 preferred item (is in the staff's possession) and at least every five trials present a different picture of a preferred item with the corresponding preferred item

3. When the person does not respond, what prompts do you provide?
    a. Say, "pick one"
    b. The first prompt is a gesture (e.g., pointing) to the picture, the second is a partial physical prompt to the picture, the third is a full physical prompt to remove the picture from the binder
    c. The only prompt is showing an open hand to accept the picture, there are no additional verbal prompts
    d. Tell another staff to physically prompt the person

4. When the person picks up the card, reaches towards you, and gives the card, what happens?
    a. Provide the person with access to the item and state the item (e.g., "ball"), then record data
    b. Take the card from the person and say, "thank you"
    c. Provide access to the item, but don't say anything
    d. Say, "Right on, you're doing great making choices!"

5. If a person throws the card or otherwise skips a step in the exchange, what happens?
    a. Staff say, "hey, that's not nice" and walk away
    b. Staff provide access to the item and keep moving through the training procedures
    c. Staff neutrally remove the picture of the item and the item, wait 5 seconds, and represent the items
    d. Staff end the assessment

Appendix P

Phase I Video Model Script

Appendix P: Phase I Video Model Script

1° Staff: Sit across from Researcher
2° Staff: Sit behind Researcher

Step 1: Fully Assisted Exchange

1° Staff: (Trial #1) Present Researcher with highly preferred item, but slightly out of reach
1° Staff: Place picture of item on table between Researcher and the desired item
1° Staff: Using SD voice say, "pick one" and present open hand
Researcher: Pick up card, but don't reach out to 1° Staff
2° Staff: Physical prompt to reach to 1° Staff
1° Staff: As soon as the picture touches open hand, say, "Oh you want _____ _____." and hand Researcher the item.
2° Staff: Physically prompt Researcher to release picture
1° Staff: Provide access to item (1 min.)
1° Staff: Remove picture and item
1° Staff: (Trial #2) Represent picture and item
1° Staff: Using SD voice say, "pick one" and present open hand
Researcher: Stare at picture on table, but don't attempt to grab it
2° Staff: Physically assist Researcher to pick up the picture, reach to 1° Staff, and release picture in 1° Staff's open hand
1° Staff: As soon as the picture touches open hand, say, "Oh you want _____ _____." and hand Researcher the item.
1° Staff: Provide access to item (1 min.)
1° Staff: Remove picture and item
1° Staff: (Trial #3) Represent picture and item
1° Staff: Using SD voice say, "pick one" and present open hand
Researcher: Pick up card and throw it to the 1° Staff
1° Staff: Pick up picture and remove item
1° Staff: (Trial #3) Represent picture and item
1° Staff: Using SD voice say, "pick one" and present open hand
Researcher: Reach for item without picking up card first
2° Staff: Physically assist Researcher to pick up the picture, reach to 1° Staff, and release picture in 1° Staff's open hand
1° Staff: As soon as the picture touches open hand, say, "Oh you want _____ _____." and hand Researcher the item.
1° Staff: Provide access to item (1 min.)
1° Staff: Remove picture and item
1° Staff: (Trial #4) Represent picture and item
1° Staff: Using SD voice say, "pick one" and present open hand
Researcher: Stare at picture on table, but don't attempt to grab it
2° Staff: Physically assist Researcher to pick up the picture, reach to 1° Staff, and release picture in 1° Staff's open hand

1° Staff: As soon as the picture touches open hand, say, "Oh you want _____ _____." and hand Researcher the item.
1° Staff: Provide access to item (1 min.)
1° Staff: Remove picture and item
1° Staff: (Trial #5) Represent picture and item
1° Staff: Using SD voice say, "pick one" and present open hand
Researcher: Pick up card, but don't reach out to 1° Staff
2° Staff: Physical prompt to reach to 1° Staff
1° Staff: As soon as the picture touches open hand, say, "Oh you want ____ _____." and hand Researcher the item.
2° Staff: Physically prompt Researcher to release picture
1° Staff: Provide access to item (1 min.)

Step 2: Fade Physical Assistance

Physical Fade 1

1° Staff: (Trial #1) Present Researcher with highly preferred item, but slightly out of reach
1° Staff: Place picture of item on table between Researcher and the desired item
1° Staff: Using SD voice say, "pick one" and present open hand
Researcher: Pick up card, but don't reach out to 1° Staff
2° Staff: Physically prompt to reach to 1° Staff
Researcher: Release picture in open hand
1° Staff: When the picture is released in your hand, say, "Oh you want ___ _____." and hand Researcher the item.
1° Staff: Provide access to item (1 min.)
1° Staff: Remove picture and item
1° Staff: (Trial #2) Represent picture and item
1° Staff: Using SD voice say, "pick one" and present open hand
Researcher: Stare at picture on table, but don't attempt to grab it
2° Staff: Physically assist Researcher to pick up the picture, reach to 1° Staff, and release picture in 1° Staff's open hand
1° Staff: When the picture is released in your hand, say, "Oh you want ___ _____." and hand Researcher the item.
1° Staff: Provide access to item (1 min.)
1° Staff: Remove picture and item
1° Staff: (Trial #3) Represent picture and item
1° Staff: Using SD voice say, "pick one" and present open hand
Researcher: Pick up card and throw it to the 1° Staff

1° Staff: Pick up picture and remove item

1° Staff: (Trial #3) Represent picture and item

1° Staff: Using SD voice say, "pick one" and present open hand

Researcher: Reach for item without picking up card first

2° Staff: Physically assist Researcher to pick up the picture, reach to 1° Staff

Researcher: Release picture in open hand

1° Staff: When the picture is released in your hand, say, "Oh you want ____." and hand Researcher the item.

1° Staff: Provide access to item (1 min.)

1° Staff: Remove picture and item

1° Staff: (Trial #4) Represent picture and item

1° Staff: Using SD voice say, "pick one" and present open hand

Researcher: Stare at picture on table, but don't attempt to grab it

2° Staff: Physically assist Researcher to pick up the picture, reach to 1° Staff

Researcher: Release picture in open hand

1° Staff: When the picture is released in your hand, say, "Oh you want ____." and hand Researcher the item.

1° Staff: Provide access to item (1 min.)

1° Staff: Remove picture and item

1° Staff: (Trial #5) Represent picture and item

1° Staff: Using SD voice say, "pick one" and present open hand

Researcher: Pick up card, but don't reach out to 1° Staff

2° Staff: Physical prompt to reach to 1° Staff

Researcher: Release picture in open hand

1° Staff: When the picture is released in your hand, say, "Oh you want ____." and hand Researcher the item.

1° Staff: Provide access to item (1 min.)

Physical Fade 2

1° Staff: (Trial #1) Present Researcher with highly preferred item, but slightly out of reach

1° Staff: Place picture of item on table between Researcher and the desired item

1° Staff: Using SD voice say, "pick one" (As soon as researcher moves to picture or object, show open hand)

Researcher: Pick up card, reach to 1° Staff, release picture in open hand

1° Staff: When the picture is released in your hand, say, "Oh you want ____." and hand Researcher the item.

1° Staff:	Provide access to item (1 min.)
1° Staff:	Remove picture and item
1° Staff:	(Trial #2) Represent picture and item
1° Staff:	Using SD voice say, "pick one" (As soon as researcher moves to picture or object, show open hand)
Researcher:	Stare at picture on table, but don't attempt to grab it
2° Staff:	Physically assist Researcher to pick up the picture
Researcher:	Reach to 1° Staff and release picture in open hand
1° Staff:	When the picture is released in your hand, say, "Oh you want ____." and hand Researcher the item.
1° Staff:	Provide access to item (1 min.)
1° Staff:	Remove picture and item
1° Staff:	(Trial #3) Represent picture and item
1° Staff:	Using SD voice say, "pick one" (As soon as researcher moves to picture or object, show open hand)
Researcher:	Pick up card and look at it
1° Staff:	Gesture open hand
Researcher:	Reach to 1° Staff and release picture in open hand
1° Staff:	When the picture is released in your hand, say, "Oh you want ____." and hand Researcher the item.
1° Staff:	Provide access to item (1 min.)
1° Staff:	Remove picture and item
1° Staff:	(Trial #4) Represent picture and item
1° Staff:	Using SD voice say, "pick one" (As soon as researcher moves to picture or object, show open hand)
Researcher:	Stare at picture on table, but don't attempt to grab it
2° Staff:	Physically assist Researcher to pick up the picture
Researcher:	Reach to 1° Staff and release picture in open hand
1° Staff:	When the picture is released in your hand, say, "Oh you want ____." and hand Researcher the item.
1° Staff:	Provide access to item (1 min.)
1° Staff:	Remove picture and item
1° Staff:	(Trial #5) Represent picture and item
1° Staff:	Using SD voice say, "pick one" and present open hand
Researcher:	Pick up card, but don't reach out to 1° Staff
1° Staff:	Gesture open hand
Researcher:	Reach to 1° Staff and release picture in open hand

1° Staff: When the picture is released in your hand, say, "Oh you want ____ ." and hand Researcher the item.

1° Staff: Provide access to item (1 min.)

Physical Fade 3

1° Staff: (Trial #1) Present Researcher with highly preferred item, but slightly out of reach

1° Staff: Place picture of item on table between Researcher and the desired item

1° Staff: Using SD voice say, "pick one" (As soon as researcher moves to picture or object, show open hand)

Researcher: Stare at picture on table, but don't attempt to grab it

1° Staff: Gesture open hand

Researcher: Continue staring

2° Staff: Partially physically prompt (i.e., lightly push elbow with fingers) Researcher to pick up the picture

Researcher: Pick up picture, reach to 1° Staff and release picture in open hand

1° Staff: When the picture is released in your hand, say, "Oh you want ____ ." and hand Researcher the item.

1° Staff: Provide access to item (1 min.)

1° Staff: Remove picture and item

1° Staff: (Trial #2) Represent picture and item

1° Staff: Using SD voice say, "pick one" (As soon as researcher moves to picture or object, show open hand)

Researcher: Pick up card, but don't reach out to 1° Staff

1° Staff: Gesture open hand

Researcher: Hold card

2° Staff: Partially physically prompt (i.e., lightly push elbow with fingers) Researcher to pick up the picture

Researcher: Pick up picture, reach to 1° Staff and release picture in open hand

1° Staff: When the picture is released in your hand, say, "Oh you want ____ ." and hand Researcher the item.

1° Staff: Provide access to item (1 min.)

1° Staff: Remove picture and item

1° Staff: (Trial #3) Place picture of item on table between Researcher and the desired item

1° Staff: Using SD voice say, "pick one" (As soon as researcher moves to picture or object, show open hand)

Researcher: Pick up card and look at it

1° Staff:	Gesture open hand
2° Staff:	Partially physically prompt (i.e., lightly push elbow with fingers) Researcher to reach to 1° Staff
Researcher:	Reach to 1° Staff and release picture in open hand
1° Staff:	When the picture is released in your hand, say, "Oh you want _____." and hand Researcher the item.
1° Staff:	Provide access to item (1 min.)
1° Staff:	Remove picture and item
1° Staff:	(Trial #4) Represent picture and item
1° Staff:	Using SD voice say, "pick one" (As soon as researcher moves to picture or object, show open hand)
Researcher:	Pick up card and throw it on the floor
1° Staff:	Pick up picture and remove item
1° Staff:	(Trial #4) Represent picture and item
1° Staff:	Using SD voice say, "pick one" (As soon as researcher moves to picture or object, show open hand)
Researcher:	Stare at picture on table, but don't attempt to grab it
1° Staff:	Gesture open hand
2° Staff:	Partially physically prompt (i.e., lightly push elbow with fingers) Researcher to pick up the picture
Researcher:	Pick up picture, reach to 1° Staff and release picture in open hand
1° Staff:	When the picture is released in your hand, say, "Oh you want _____." and hand Researcher the item.
1° Staff:	Provide access to item (1 min.)
1° Staff:	Remove picture and item
1° Staff:	(Trial #5) Represent picture and item
1° Staff:	Using SD voice say, "pick one" and present open hand
Researcher:	Pick up picture, reach to 1° Staff and release picture in open hand
1° Staff:	When the picture is released in your hand, say, "Oh you want _____." and hand Researcher the item.
1° Staff:	Provide access to item (1 min.)

Step 3: Fade the "Open Hand" Cue

1° Staff:	(Trial #1) Present Researcher with highly preferred item, but slightly out of reach
1° Staff:	Place picture of item on table between Researcher and the desired item
1° Staff:	Using SD voice say, "pick one"

Researcher:	Pick up picture, reach to 1° Staff
1° Staff:	Show open hand
Researcher:	Release picture in open hand
1° Staff:	When the picture is released in your hand, say, "Oh you want _____." and hand Researcher the item.
1° Staff:	Provide access to item (1 min.)
1° Staff:	Remove picture and item
1° Staff:	(Trial #2) Represent picture and item
1° Staff:	Using SD voice say, "pick one"
Researcher:	Pick up card and reach to 1° Staff
1° Staff:	Show open hand
Researcher:	Hold card
1° Staff:	Gesture open hand
Researcher:	Release picture in open hand
1° Staff:	When the picture is released in your hand, say, "Oh you want _____." and hand Researcher the item.
1° Staff:	Provide access to item (1 min.)
1° Staff:	Remove picture and item
1° Staff:	(Trial #3) Place picture of item on table between Researcher and the desired item
1° Staff:	Using SD voice say, "pick one"
Researcher:	Pick up card and look at it for 2 sec., reach to 1° Staff and release picture in open hand
1° Staff:	When the picture is released in your hand, say, "Oh you want _____." and hand Researcher the item.
1° Staff:	Provide access to item (1 min.)
1° Staff:	Remove picture and item
1° Staff:	(Trial #4) Represent picture and item
1° Staff:	Using SD voice say, "pick one"
Researcher:	Pick up picture and throw on ground
1° Staff:	Pick up picture and remove item
1° Staff:	(Trial #4) Represent picture and item
1° Staff:	Using SD voice say, "pick one"
Researcher:	Pick up picture, reach to 1° Staff and release picture in open hand
1° Staff:	When the picture is released in your hand, say, "Oh you want _____." and hand Researcher the item.

1° Staff:	Provide access to item (1 min.)
1° Staff:	Remove picture and item
1° Staff:	(Trial #5) Represent picture and item
1° Staff:	Using SD voice say, "pick one" and present open hand
Researcher:	Pick up picture, reach to 1° Staff and release picture in open hand
1° Staff:	When the picture is released in your hand, say, "Oh you want ____." and hand Researcher the item.
1° Staff:	Provide access to item (1 min.)

Appendix Q

Phase II Video Model Script

Appendix Q: Phase II Video Model Script

1° Staff: Sit across from Researcher, have highly preferred items, pictures of highly preferred items, data collection sheet, and pencil

1° Staff: Attach one picture of a highly preferred item via Velcro to the communication binder

Step 1: Removing Item

1° Staff: (Trial #1) Present Researcher with highly preferred item

Researcher: Play with item or Consume Item

1° Staff: Using SD voice say, "my turn" and remove the item and put it out of researcher's reach

1° Staff: Put the communication binder with a single picture of the item accessible on the table

Researcher: Try to reach for item without picking up card first

1° Staff: Physical prompt to remove the picture

Researcher: With picture in hand, reach towards trainer and release picture into the trainer's hand

1° Staff: Immediately hand the item and state the item (e.g., "ball")

1° Staff: Provide access to item (10-15 seconds)

1° Staff: Remove communication binder

1° Staff: Record data

1° Staff: Using SD voice say, "my turn," remove the item and put it out of the researcher's reach

1° Staff: (Trial #2) Put the communication binder with a single picture of the item accessible on the table

Researcher: Stare at picture on table, but don't attempt to grab it

1° Staff: Physically assist Researcher to pick up the picture

Researcher: With picture in hand, reach towards trainer and release picture into the trainer's hand

1° Staff: Immediately hand the item and state the item (e.g., "ball")

1° Staff: Provide access to item (10-15 seconds)

1° Staff: Remove communication binder

1° Staff: Record data

1° Staff: Using SD voice say, "my turn," remove the item and put it out of the researcher's reach

1° Staff:	(Trial #3) Put the communication binder with a single picture of the item accessible on the table
Researcher:	Pick up card and throw it to the 1° Staff
1° Staff:	Pick up picture and remove picture and binder, wait 5 seconds
1° Staff:	(Trial #3) Represent communication binder with a single picture of the item accessible on the table
Researcher:	Reach for item without picking up card first
1° Staff:	Physically assist Researcher to pick up the picture
Researcher:	With picture in hand, reach towards trainer and release picture into the trainer's hand
1° Staff:	Immediately hand the item and state the item (e.g., "ball")
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, "my turn," remove the item and put it out of the researcher's reach
1° Staff:	(Trial #4) Put the communication binder with a single picture of the item accessible on the table
Researcher:	Pick up card, reach towards trainer and release picture into the trainer's hand
1° Staff:	Immediately hand the item and state the item (e.g., "ball")
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, "my turn," remove the item and put it out of the researcher's reach
1° Staff:	(Trial #5) Put the communication binder with a single picture of the item accessible on the table
Researcher:	Pick up card, but don't hand to trainer
1° Staff:	Gesture open hand
Researcher:	With picture in hand, reach towards trainer and release picture into the trainer's hand
1° Staff:	Immediately hand the item and state the item (e.g., "ball")
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder

1° Staff:	Record data
1° Staff:	Using SD voice say, “my turn,” remove the item and put it out of the researcher’s reach

Step 2: Increase Distance Between Trainer and Individual

Distance Fade 1

1° Staff:	(Trial #1) Present Researcher with highly preferred item
Researcher:	Play with item or Consume Item
1° Staff:	Using SD voice say, “my turn” and remove the item and put it out of researcher’s reach
1° Staff:	Put the communication binder with a single picture of the item accessible on the table
1° Staff:	Take one small step away from researcher
Researcher:	Try to reach for item without picking up card first
1° Staff:	Physical prompt to remove the picture, then take one small step away from researcher
Researcher:	With picture in hand, reach towards trainer and release picture into the trainer’s hand
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., “ball”)
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, “my turn,” remove the item and put it out of the researcher’s reach
1° Staff:	(Trial #2) Put the communication binder with a single picture of the item accessible on the table
1° Staff:	Take one small step away from researcher
Researcher:	Stare at picture on table, but don’t attempt to grab it
1° Staff:	Physical prompt to remove the picture, then take one small step away from researcher
Researcher:	With picture in hand, reach towards trainer and release picture into the trainer’s hand
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., “ball”)
1° Staff:	Provide access to item (10-15 seconds)

1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, “my turn,” remove the item and put it out of the researcher’s reach
1° Staff:	(Trial #3) Put the communication binder with a single picture of the item accessible on the table
1° Staff:	Take one small step away from researcher
Researcher:	Pick up card and throw it to the 1° Staff
1° Staff:	Pick up picture and remove picture and binder, wait 5 seconds
1° Staff:	(Trial #3) Represent communication binder with a single picture of the item accessible on the table
1° Staff:	Take one small step away from researcher
Researcher:	Walk directly to trainer without picking up card
1° Staff:	Physically direct Researcher to pick up the picture
1° Staff:	As Researcher attempts to grab picture, take one small step away from researcher
Researcher:	With picture in hand, reach towards trainer and release picture into the trainer’s hand
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., “ball”)
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, “my turn,” remove the item and put it out of the researcher’s reach
1° Staff:	(Trial #4) Put the communication binder with a single picture of the item accessible on the table
1° Staff:	Take one small step away from researcher
Researcher:	Pick up card, walk over to trainer and reach out with card in hand, release card
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., “ball”)
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data

1° Staff:	Using SD voice say, “my turn,” remove the item and put it out of the researcher’s reach
1° Staff:	(Trial #5) Put the communication binder with a single picture of the item accessible on the table
1° Staff:	Take two steps away from researcher
Researcher:	Pick up card, but don’t move towards trainer
1° Staff:	Gesture open hand
Researcher:	Look at trainer, but don’t walk towards trainer
1° Staff:	Physically prompt step in direction trainer was standing
Researcher:	Take step
1° Staff:	Return to previous spot
Researcher:	Walk over to trainer, reach out with card in hand, release card
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., “ball”)
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, “my turn,” remove the item and put it out of the researcher’s reach

Distance Fade 2

1° Staff:	(Trial #1) Present Researcher with highly preferred item
Researcher:	Play with item or Consume Item
1° Staff:	Using SD voice say, “my turn” and remove the item and put it out of researcher’s reach
1° Staff:	Put the communication binder with a single picture of the item accessible on the table
1° Staff:	Take two steps away from researcher
Researcher:	Pick up card, walk over to trainer, reach out with card in hand, release card
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., “ball”)
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, “my turn,” remove the item and put it out of the researcher’s reach

1° Staff:	(Trial #2) Put the communication binder with a single picture of the item accessible on the table
1° Staff:	Take two steps away from researcher
Researcher:	Stare at picture on table, but don't attempt to grab it
1° Staff:	Physical prompt to remove the picture, then take two steps away from researcher
Researcher:	With picture in hand, reach towards trainer and release picture into the trainer's hand
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., "ball")
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, "my turn," remove the item and put it out of the researcher's reach
1° Staff:	(Trial #3) Put the communication binder with a single picture of the item accessible on the table
1° Staff:	Take three steps away from researcher
Researcher:	Walk directly to trainer without picking up card
1° Staff:	Physically direct Researcher to pick up the picture
1° Staff:	As Researcher attempts to grab picture, take three steps away from researcher
Researcher:	Pick up card and look at trainer
1° Staff:	Gesture hand for card
Researcher:	With picture in hand, walk towards trainer, reach towards trainer and release picture into the trainer's hand
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., "ball")
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, "my turn," remove the item and put it out of the researcher's reach
1° Staff:	(Trial #4) Put the communication binder with a single picture of the item accessible on the table

1° Staff:	Take six steps away from researcher
Researcher:	Pick up card, walk over to trainer and reach out with card in hand, release card
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., "ball")
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, "my turn," remove the item and put it out of the researcher's reach
1° Staff:	(Trial #5) Put the communication binder with a single picture of the item accessible on the table
1° Staff:	Take 10 steps away from researcher
Researcher:	Pick up card, walk over to trainer, reach out with card in hand, release card
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., "ball")
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, "my turn," remove the item and put it out of the researcher's reach

Step 3: Increase Distance Between Individual and Picture

1° Staff:	(Trial #1) Present Researcher with highly preferred item
Researcher:	Play with item or Consume Item
1° Staff:	Using SD voice say, "my turn" and remove the item and put it out of researcher's reach
1° Staff:	Put the communication binder with a single picture of the item about two feet away from researcher
1° Staff:	Take 10 steps away from researcher
Researcher:	Hold hand out (as if grabbing for the item)
1° Staff:	Gesture to the communication binder
Researcher:	Walk towards binder, remove picture, walk towards trainer, reach towards trainer, release picture
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., "ball")

1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, "my turn," remove the item and put it out of the researcher's reach
1° Staff:	(Trial #2) Put the communication binder with a single picture of the item about three feet away from researcher
1° Staff:	Take 10 steps away from researcher
Researcher:	Stare at picture on table, but don't attempt to grab it
1° Staff:	Physical prompt to walk towards picture
Researcher:	Walk towards binder, pick up card and throw it at trainer
1° Staff:	Pick up picture and remove picture and binder, wait 5 seconds
1° Staff:	(Trial #2) Represent communication binder with a single picture of the item about three feet away from the researcher
Researcher:	Walk directly to trainer without picking up card first
1° Staff:	Gesture to communication binder
Researcher:	Reach for item
1° Staff:	Physical prompt to communication binder and take 10 steps away from researcher
Researcher:	Walk to binder, remove picture, walk to trainer, reach to trainer, release picture
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., "ball")
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, "my turn," remove the item and put it out of the researcher's reach
1° Staff:	(Trial #3) Put the communication binder with a single picture of the item about three feet away from researcher
1° Staff:	Take 10 steps away from researcher
Researcher:	Pick up card and throw it to the 1° Staff
1° Staff:	Pick up picture and remove picture and binder, wait 5 seconds
1° Staff:	(Trial #3) Represent communication binder with a single picture of the item about three feet away from researcher

1° Staff:	Take 10 steps away from researcher
Researcher:	Pick up card, look at trainer
1° Staff:	Gesture hand
Researcher:	Walk towards trainer, reach towards trainer, release picture into the trainer's hand
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., "ball")
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, "my turn," remove the item and put it out of the researcher's reach
1° Staff:	(Trial #4) Put the communication binder with a single picture of the item about five feet away from researcher
1° Staff:	Take 10 steps away from researcher
Researcher:	Pick up card, walk over to trainer and reach out with card in hand, release card
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., "ball")
1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, "my turn," remove the item and put it out of the researcher's reach
1° Staff:	(Trial #5) Put the communication binder with a single picture of the item about ten feet away from researcher
1° Staff:	Take 10 steps away from researcher
Researcher:	Pick up card, but don't move towards trainer
1° Staff:	Gesture open hand
Researcher:	Look at trainer, but don't walk towards trainer
1° Staff:	Physically prompt step in direction trainer was standing
Researcher:	Take step
1° Staff:	Return to previous spot
Researcher:	Walk over to trainer, reach out with card in hand, release card
1° Staff:	Immediately (while the exchange is happening) hand the item and state the item (e.g., "ball")

1° Staff:	Provide access to item (10-15 seconds)
1° Staff:	Remove communication binder
1° Staff:	Record data
1° Staff:	Using SD voice say, “my turn,” remove the item and put it out of the researcher’s reach

CURRICULUM VITAE

Shawnee Collins, BCBA, LCSW

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Education

Utah State University
Doctor of Disability Disciplines
Emphases: Applied Behavior Analysis and Disability Studies
Expected Graduation Date: May 2012

University of Utah
Master of Social Work
Graduation Date: August 2003

Brigham Young University
Bachelor of Social Work
Graduation Date: August 2000

Employment History

Chrysalis
Clinical Director
October 2006-Current
Utah and Nevada

- Supervise Chrysalis Behavior Analysts and Clinical Interns
- Conduct Functional Assessments and write Behavior Support Programs (BSPs/Hab Plan 5.1)
- Present BSPs/Hab Plan 5.1 to Human Rights Committees and Peer Review/Behavior Intervention Committees
- Work closely with therapists, guardians, Support/Service Coordinators
- Train managers and staff on BSPs/Hab Plan 5.1, Disability Topics (e.g., Autism, Acquired Brain Injury), and Human Rights Policies and

	Procedures • Individual and Group Therapy • Mental Health Assessments • Design, pilot, and implement new staff training procedures
Chrysalis *Senior Behavior Analyst* September 1999-October 2006 Utah	• Conduct Functional Assessments and write Behavior Support Programs (BSPs) • Present BSPs to Human Rights Committees and Peer Review Committee • Work closely with therapists, guardians, Support Coordinators • Train managers and staff on BSPs, Disability Topics (e.g., Autism, Acquired Brain Injury), and Human Rights Policies and Procedures • Individual and Group Therapy • Mental Health Assessments
Utah State University *Research Assistant* September 2004-December 2006 Logan, Utah	• Coordinate Feeding Clinic Services in conjunction with the Center for Persons with Disabilities • Develop Traumatic Brain Injury training curriculum • Conduct research in conjunction with USU faculty
Utah Leadership Education in Neurodevelopmental Disabilities (ULEND) *ULEND Trainee* *September 2004-April 2005* *Logan, Utah*	• Participate in didactic training sessions • Coordinate Feeding Clinic Services in conjunction with the Center for Persons with Disabilities • Develop Traumatic Brain Injury Awareness Brochure • Assist advocacy agency, Family Voices, in process to become a non-profit agency (501 C3) • Participate in interdisciplinary leadership clinic opportunities (e.g. dental clinic, up-to-three program, Indian Walk-in Clinic, U-fit,)
Wasatch Mental Health *Therapist--Internship* *September 2002-August 2003*	• Provide therapy services for students in Nebo School District • Co-therapist in Juvenile Sex Offender

Provo, Utah	Program • Develop Treatment Plans for all individual clients
Center for Women and Children in Crisis *Utah County Rape Crisis Coordinator* January 2000-February 2003 Provo, Utah	• Provide in-person crisis intervention and/or telephone advocacy for survivors of sexual assault and their loved ones • Complete intake paperwork for survivors of domestic violence • Complete danger assessments for survivors of domestic violence • Conduct 40 hour Rape Crisis Volunteer Training • Assist survivors of domestic violence to develop action plans • Co-lead women's and children's domestic violence group • Present to community agencies and public schools on sexual assault, abuse, dating violence and domestic violence • Organize 24-hour team coverage each month • Write quarterly and annual reports for VOCA, VAWA, and RSAAW grant reports

Certification

Board Certified Behavior Analyst #1-07-3485
Licensed Clinical Social Worker #5422498-3501

Teaching

Fall 2004: SPED 4000: Introduction to Special Education (TA)
Fall 2005: SPED 6700: Single Subject Research Design—Distance Education Graduate Course

Publications

Collins, S., Higbee, T. S., & Salzberg, C. L. (2009). The effects of video modeling on staff implementation of a problem solving intervention with adults with developmental disabilities. *Journal of Applied Behavior Analysis, 42,* 849-854.

Christensen, K. M., Collins, S. D., Holt, J. M., & Phillips, C. (2006). The relationship between design of the built environment and the ability to egress of individuals with disabilities. *Review of Disability Studies: An International Journal,* 2(3), 24-34.

Collins, S. & Salzburg, C. (2005). Scientifically based research and students with severe disabilities: Where do educators find evidence-based practices? *Rural Special Education Quarterly,* 24(1), 60-63.

Collins*, S.* & Sneddon, P. (2005). When is a bump, more than a bump? *Traumatic Brain Injury Awareness Brochure.*

Professional Presentations

Collins, S. (April 11, 2011). Fundamentals of behavior management. A forum presentation at the 2011 Mental Health Symposium: Focus on Autism, Orem, Utah.

Collins, S. D., Higbee, T. S., & Salzberg, C. L. (May 24, 2008). The effects of video modeling on staff implementation of a problem solving intervention in residential settings. A paper presented at the 34th Annual Association for Behavior Analysis International Convention, Chicago, Illinois.

Collins, S. D., & Salzberg, C. L. (May 26, 2007). An analysis of JABA research: Beneficiaries, content, and context. A paper presented at the 33rd Annual Association for Behavior Analysis International Convention, San Diego, California.

Collins, S. & Sheen, J. (March 2007). Traumatic Brain Injury. A paper presented at the Pacific Rim Conference on Disabilities, Honolulu, Hawaii.

Sheen, J., & Collins, S. (March 2007). Utah's Employment Related Personal Assistance Program: Enhancing quality of life through work. A paper presented at the Pacific Rim Conference on Disabilities, Honolulu, Hawaii.

Sheen, J., Holt, J., & Collins, S. (January 19, 2006). Brain Injury. A pilot training curriculum presented in conjunction with the Center for Persons with Disabilities, Salt Lake City, Utah.

Collins, S., Sheen, J., & Holt, J. (January 9, 2006). Brain Injury. A pilot training curriculum presented at the Center for Persons with Disabilities, Logan, Utah.

Holt, J., Collins, S., & Sheen, J. (November 2005). Brain Injury. A pilot training curriculum presented at the Center for Persons with Disabilities, Logan, Utah.

Holt, J., Wildrick, S., & Collins, S. (October 2005). Brain Injury Pilot Community. A paper presented at the Utah Brain Injury Conference, Ogden, Utah.

Holt, J., Collins, S., & Sneddon, P. (2005). *Working with students with traumatic brain injuries and their families.* A paper presented at the Utah Conference of Effective Practices in Special Education, Logan, Utah.

Professional Membership

Association for Behavior Analysis International
Utah Association for Behavior Analysis
Nevada Association for Behavior Analysis
Prader-Willi Syndrome Association