

PRESCHOOL LIFE SKILLS: A SYSTEMATIC REPLICATION WITH CHILDREN
WITH DEVELOPMENTAL DISABILITIES

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School readiness literature indicates that skills which lend themselves to readiness and success in primary school are not amongst the skills generally taught in center based care facilities. Furthermore, children enrolled in non- maternal care settings are at greater risk for developing problem behavior. To address this issue, the Preschool Life Skills (PLS) program was created as a preventative intervention to teach functional communication and social skills to typically developing children. Children diagnosed with developmental disabilities are not immune to these concerns and are also at risk for developing problem behaviors in non-maternal settings, due to insufficient instruction and contingency management. The current study aimed to evaluate and identify the dose of instruction necessary for the PLS curriculum to be a successful and efficient teaching tool for children with developmental disabilities. Twelve preschool life skills were taught to 9 participants across 4 instruction units. Instruction was provided by means of a three-tiered instructional approach, which incorporated class-wide instruction, followed by small group and individual instruction as necessary. Skills were sequentially introduced and unit probes were conducted following mastery of all 3 skills within a unit. Results indicated that the adaptations made to the original preschool life skills curriculum led to skill acquisition with all nine participants.

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CHAPTER 1

INTRODUCTION

The amount of time that school- aged children spend in non-maternal care has been shown to have a positive correlation with the occurrence of problem behavior as reported by caregivers and teachers (NICHD, 2003). It is unlikely that this observation is directly due to children not being in direct care of their primary caregivers. However, it is likely that the difficulties that arise when managing contingencies with strained child/staff ratios in addition to fewer individualized teaching opportunities may contribute to the emergence of problem behavior in non-maternal care settings. According to the National Center for Education Statistics, approximately 60.6% of children living in the United States were enrolled in some variation of center based or preprimary care in 2012. This number had increased by 5% since 1995. With the percentage of children exposed to non-maternal care increasing, center-based care facilities are expected to keep children safe and engaged while preparing them for kindergarten. The presence of problem behaviors such as aggression, non-compliance and disruption in children's repertoires directly impede learning and serve as barriers when trying to teach and facilitate social interactions among peers.

In most early learning settings, direct teaching typically occurs during circle time. Skills taught may vary, but generally include reciting days of the week, identifying colors, numbers, letters, and other early academic skills. Current research indicates that the skills that teachers and early education experts identify as positive indicators for school readiness have shifted from academically oriented skills to skills that are social in nature (Heaviside & Ferris, 1993; Lin, Lawrence & Gorell, 2003; Piotrkowski, Botsko, & Matthews, 2001). Skills identified as most beneficial for classroom success include informing others of needs, sharing and taking turns,

demonstrating empathy towards others, and the absence of disruptive behaviors in their repertoires (Hanley, Heal, Tiger & Ingvarsson, 2007). Based on these findings, Hanley et al. (2007) developed the Preschool Life Skills (PLS) curriculum, which was intended to serve as a preventative intervention to reduce the likelihood that children enrolled in non-maternal care would develop problem behaviors. Hanley et al. defined Preschool Life Skills as “desirable responses to commonly occurring and evocative classroom situations”. Instruction occurred on a class-wide level and targeted 13 social skills across 4 instructional units (instruction following, functional communication, tolerance of denial and delay, and friendship skills). Skills selected to be targeted within PLS were informed by the school readiness literature (e.g., Davies & North, 1990; West, 1993) and functional communication training (FCT) literature (e.g., Carr & Durand, 1985; Hanley, Iwata & Thompson, 2001).

Throughout PLS, Hanley et al. (2007) repeatedly presented participants with opportunities to emit targeted preschool life skills. These opportunities were termed *evocative situations*. Examples of evocative situations contrived throughout PLS included arranging the environment such that a child could not reach a preferred item and requiring them to request assistance, and tolerating access to delays to reinforcement when instructed to “wait” for variable periods of time. During these critical teaching periods, 16 participants, ranging in age from 3 to 5, were taught appropriate social responses, which served as functionally equivalent replacements for problem behavior. Appropriate social skills included functional communication responses (FCR’s) such as “excuse me” or “I need help”, which serve as replacement behaviors for problem behavior. After these functional responses were taught, periods of denial and delay were imposed to resemble typical early learning settings, in which student/teacher ratios are strained and adult attention is periodically diverted.

In order to teach the skills, Hanley et al. (2007) incorporated Behavioral Skills Training (BST) into group instruction that occurred initially, and class-wide one-to-one instruction, which consisted of dispersed teaching trials presented throughout the participants' day. BST has been defined as "an effective training package that consists of instructions, modeling, rehearsal, and feedback" (Ward-Horner & Strumey, 2012, p.75). BST has been used to teach a variety of skills to a wide range of learners. Skills have included, but are not limited to, social skills, safety skills, self- help skills, vocational skills, and staff training skills. Learners have included both children and adults with and without developmental disabilities. Using these methods, Hanley and colleagues successfully facilitated skill acquisition for all participants across PLS targets and achieved notable decreases (74%) in combined errors of omission and commission among participants (Hanley, Fahmie, & Heal, 2014). Errors of omission indicated that the participant did not complete a component of the instruction, or did not respond at all, while errors of commission indicated that the child engaged in disruptive behavior or provided a response that was not compatible with the operational definition of the targeted preschool life skill response.

Since 2007, PLS has been further evaluated with typically developing children on 3 occasions. Luczynski et al. (2013) evaluated the effects of PLS on the acquisition of self- control skills and functional communication training in preschoolers. All instruction was provided in a small group context according to the current Response-to-intervention (RTI) framework, which is applied in typical elementary school settings. In RTI, intensity of services is tiered and dependent on severity of problem behavior exhibited by children (Luczynski, et al., 2013; Gresham, 2004). In the original PLS, instruction was provided on a class-wide level. Based on the RTI framework, this would be considered a tier 1 intervention. The small group instruction provided by Luczynski, et al. would be considered tier 2 intervention. With some modifications

to the original PLS format, Luczynski and colleagues were able to achieve mastery level (80% correct responding) skill acquisition across all participants. Furthermore, 5 of 6 participants' demonstrated maintenance of taught skills when evaluated at least 24 hours later.

The most recent research conducted with preschool life skills (as identified by Hanley, et al. 2007) was conducted within a Head Start classroom. A 57% overall reduction in problem behavior was observed. Performance of PLS target responding was variable across children (Hanley, Fahmie, & Heal, 2014).

In 2014, Luczynski, Hanley, and Rodriguez conducted a study evaluating the generalization (across people and skills), and maintenance of preschool life skills. Modifications included the presentation of multiple exemplars of functional communication responses and multiple exemplars of appropriate requests to solicit attention. Additionally, small group instruction was implemented during initial teaching and individual instruction was provided during trial presentation. Precursor responses, such as orienting toward the speaker, making eye contact, or providing a verifying statement such as "yes" to indicate attending were taught in an attempt to increase maintenance of target vocal requests (Beaulieu, Hanley, & Roberson, 2012). Robust effects were not observed; however, it was noted that satisfactory levels of generalizations were achieved after the generalization teachers were informed of the targeted skills and teaching procedures. Generalization teachers were only present during generalization sessions and were initially unaware of both the skills being taught and procedures to follow when providing instruction (Luczynski et al, 2014).

Systematic replications and extensions of the original Preschool Life Skills program (Hanley et al., 2007) aimed to address concerns relating to generalization and maintenance. However, the studies described above did not include or evaluate remedial procedures to

implement in the event that skill acquisition did not occur during initial class-wide instruction. In 2012, Francisco and Hanley evaluated the effects of progressively increasing intertrial intervals (ITIs) on the acquisition and generalization of three social skills. Intertial intervals are defined as the time between learning opportunities. It has been suggested that shorter ITI's may allow for more rapid acquisition, while longer ITI's may facilitate maintenance and generalization (Francisco & Hanley, 2012). By progressively increasing intertrial intervals, the researchers hoped to demonstrate both the effects of short ITI distribution (rapid skill acquisition) and long ITI distribution (generality and maintenance). The results supported the previous finding that shorter ITI's facilitated skill acquisition more rapidly than distributed ITI's. Furthermore, the authors speculated that the reason for the effectiveness of progressively increasing ITIs on skill acquisition was due to incorporating of both short and long intertrial intervals. Francisco and Hanley continue to advocate the use of progressive ITI's when distributed ITI's are insufficient to teach social skills such as those in the preschool life skills curricula.

While much work has been conducted to address concerns relating to skill acquisition, generalization and maintenance of PLS, no research has been conducted to extend the utility of this curriculum to developmentally disabled individuals. As stated previously, children who spend time in non-maternal care are at risk for exhibiting higher rates of problem behavior, and these center based care facilities are charged with a portion of the responsibility to prepare all children for school based instruction. Children with developmental disabilities are subjected to similar instructional settings, provided through public schools and Early Childhood Intervention (ECI) services. Therefore, these individuals are also at risk. When considering the severity and intensity of problem behaviors emitted by this population due to deficits in communication and *social competence* (defined as “a complex set of skills that includes effective peer interactions”;

Chandler, Lubeck, & Fowler, 1992, p. 445), identifying an instructional program that utilizes behavioral skills training to teaching functional communication seems ideal.

Skills targeted in the preschool life skills curriculum are, indeed, skills with which children with developmental disabilities often demonstrate deficits (e.g., Plant & Sanders, 2007). However, the instructional approach used in the original PLS study (class-wide teaching), may not be ideal. While the component of individualized instruction is compatible with current knowledge on best practice for skill acquisition in children with developmental disabilities, initial instruction occurring at a class-wide level, consisting of the combination of large group instruction and a limited number of one-to-one teaching opportunities, may not be sufficient for learning to occur for all children. Therefore, implementing a tiered instructional approach may be an efficient method to facilitate skill acquisition in individuals for whom individualized instruction yields favorable results. As demonstrated by Luczynski et al. (2013), a small group instructional format may be beneficial for skill acquisition in the event that mastery is not acquired through class-wide teaching. Additionally, the application of progressively increasing intertrial intervals (ITI's) may prove to be beneficial in the event that exposure to distributed (ITIs) in class-wide instruction (as implemented in Hanley et al., 2007) and small group instruction (Luczynski et al., 2013; Luczynski et al., 2014) is insufficient to achieve acquisition.

The current study aimed to evaluate the effectiveness of PLS instruction with children with developmental disabilities. The goal was to identify the necessary “dose” of instruction required to expand the utility of PLS to a group of young students with developmental disabilities demonstrating social and behavioral deficits. In order to identify the necessary dose (or supports needed), a three- tiered instructional approach was applied. The tiered instructional approach was incorporated in order to allow additional teaching opportunities for participants

whom single session exposure to instruction was insufficient to acquire skills. All tiers of instruction incorporated functional communication training and behavioral skills training as in the original study (Hanley et al., 2007). Tiers of instruction differed by the number of peers present during instruction and level of support provided. The first tier of instruction occurred at a class-wide level and was similar to the teaching procedure implemented in the original PLS study. The second tier of instruction (small group instruction) was identical to the first tier with the exception of the number of peers present, and the third tier of instruction consisted of individual instruction incorporating progressively increasing intertrial intervals (Francisco & Hanley, 2012). By incorporating a tiered instructional approach, peers making good progress were able to move forward, while those demonstrating difficulties with skill acquisition were provided with additional teaching opportunities with one-to-one instruction.

CHAPTER 2

METHOD

Participants

Nine children, 7 boys and 2 girls, ranging in ages from 3 years to 9 years were recruited from 3 different classrooms within a private school for children with complex developmental disabilities (see Table 1). Participants attended school from 8:30 am until 3:00 pm Monday through Friday. Each of the classrooms was supervised by one lead teacher and at least one assistant teacher. Classrooms within the school differed in student/teacher ratio. One participant spent the majority of his day in a 1:8 student/teacher ratio, 3 participants spent the majority of their day in a 1:5 ratio, and 5 students spent the majority of their day in a 1:2.5 ratio. Their diagnoses included autism, Down syndrome, speech apraxia, oppositional defiance disorder (ODD), and global developmental delay. All of the children exhibited listener skills and 6 of the 9 participants demonstrated functional speaker skill repertoires. Three of the 9 participants exhibited deficits in speaker skills and presented with limited vocal/verbal repertoires. One participant with speech apraxia diagnosis used an augmentative and alternative communication (AAC) device to communicate with teachers and peers throughout the current study. The other 2 participants who exhibited deficits in vocal/verbal communication reliably emitted 2-4 word phrases. Approximations to target responses were accepted throughout the study for these participants. Participant's vocal/verbal abilities were measured by their placement within the school's curriculum for vocal/verbal targets and by goals and criteria identified by the participants' caregivers and teachers while addressing communication deficits.

Setting

All preschool life skills (PLS) sessions were conducted in one classroom with a student to teacher ratio was 1:2.5. The classroom had three separate teaching areas and a restroom. Specific teaching areas included the self-help area (to the right of the main room), the social skills area (directly behind the main room), and the academic area (main area upon entry). All sessions were conducted in the academic area, because it provided the largest space to accommodate 9 participants, 1 lead teacher and 1-2 assistant teachers, who also served as data collectors throughout the study. The academic area was carpeted, with 1 large table, 1 double-sided toy shelf, 2 computers on a rectangular table against the back wall, 1 book shelf, and cubbies for the students to store their belongings. All opportunities to observe children during contrived evocative situations occurred during 30-minute play stations. Play stations consisted of 6 highly preferred activities available simultaneously. The participants could access all the stations during baseline probes, post teaching unit probes, and the final maintenance probe. Activities regularly available included Play-Doh, kinetic sand, art supplies, Lego® bricks, pretend play sets (doll house, kitchen, tool set, baby dolls with a crib, etc.), figurines, and iPad®. Toys were presented based on preference. Preference was evaluated via observations of student interactions with items and requests made for items throughout the day. Students who attended other classrooms during the day were allowed to bring a preferred item from their classroom.

The lead teacher in the classroom was a senior level graduate student, and the assistant teachers both had bachelor's degrees in psychology in addition to a minimum of 3 years of experience providing behavior analytic services for children with developmental disabilities. Three school mandated breaks occurred throughout the study; fall break, which lasted 1 week, winter break, lasting 2 weeks, and spring break, which lasted 1 week. If students were absent during sessions, they would resume upon their return. When absences occurred, the delivery of a

sequentially tiered instructional approach could not be guaranteed. For example, if a participant was absent during all large group instruction sessions and all participants acquired the (tier 1); the absent student would receive individual instruction (tier 3) when he or she returned, because it was not in the best interest of the other participants to postpone further instruction.

All classrooms within the private school implemented proactive and reactive behavior management strategies. These strategies continued during PLS sessions. Proactive behavior management strategies included minimizing transition times between activities, providing adequate space and supplies for each activity present, ensuring activities were rotated regularly, and ensuring activities and items reflected participants' interests. Reactive behavior management strategies included attending to desirable behavior by providing descriptive praise frequently and implementing the classroom behavior management system, referred to as "the can system". The can system is a levels system that serves as a "behavioral barometer" for teachers and children to monitor their behavior throughout the day. The children each had a popsicle stick with their name written on it. A blue cup with an open mouthed smile, a green cup with a closed mouth smile, and red cup with a sad face and tears were lined up horizontally in sight of the children. The placement of the stick at any given time dictated the amount and variety of preferred items available to the child, with the blue can signifying that all items could be earned, and the red can indicating that no reinforcers were available (except moving up to the next level). Children's sticks were placed in the blue can at the beginning of all PLS sessions. They stayed in the blue can if they continued to behave in a helpful, considerate and compliant manner. They moved down to the green can for minor infractions such as failure to comply with instructions the first time when asked or failure to talk to peers and teachers appropriately. They moved to the red can for behaviors that are harmful to themselves or others, aggression, property destruction, and

tantrums. If the children moved down in the can system, they could earn their way back up by engaging in desirable behavior.

Measurement and Interobserver Agreement

Direct Measures

Data were collected by observers using paper data sheets and pen during all sessions. Participant behavior was scored as either a correct preschool life skill, an error of omission, in which the participant neglected to complete a component of the skill or did not initiate completion at all, or an error of commission, in which the participant either engaged in problem behavior during the trial or emitted a behavior other than the targeted response. The same measures were collected across all teaching and probe sessions.

A second observer (assistant teacher) simultaneously and independently recorded participant responding during 58% of baseline observations, 71% of large group instruction sessions, 80% of small group instruction sessions, and 43% of individual instruction sessions (see Table 3). Agreements were defined as both data collectors scoring the same participant response for the same trial. All observers were given copies of operational definitions of preschool life skill targets, correct response criterion and examples of errors of omission and commission prior to sessions. Interobserver agreement (IOA) scores were calculated by dividing the number of agreements by the total number of trials and multiplying by 100. Mean agreement for all direct measures was 98% (range 86% to 100%). Treatment integrity (TI) data were collected during 48% of baseline observations, 89% of large group instruction sessions, 80% of small group instruction sessions, and 58% of individual instruction sessions. Treatment integrity was 100% across all sessions. IOA data were also collected for TI data during 48% of baseline observations, 44% of large group instruction sessions, 63% of small group sessions and 57% of

individual instruction sessions. The average agreement obtained was 99.8% (range 91% to 100%).

Indirect Measures

A brief social acceptability questionnaire (adapted from the questionnaire used in Hanley et al., 2007) consisting of 6 questions relating to the acceptability and feasibility of preschool life skills, was administered to 3 of the 7 teachers across the classrooms from which students were recruited. Initially, 4 out of 7 teachers were slated to participate in the questionnaire, but staffing changes within the school occurred throughout the year, affecting all 3 classrooms. Teachers were asked to indicate on a scale of 1-7 whether the participants benefitted from the preschool life skills program, whether the social environments in their classrooms improved due to participants' exposure to PLS, whether the skills targeted would be useful if taught to all students in the classroom, whether addressing PLS skills with their entire class would be beneficial, and if they would recommend preschool life skills to other teachers.

Procedure

General Procedure

Sessions began promptly at 9:30 am and 1:30 pm daily. Sessions were terminated when 30 minutes had elapsed. Depending on the session, evocative situations were either presented immediately after active engagement in activities was observed, or after teaching (large group or small group) occurred. Evocative situations included opportunities to share toys or materials, wait patiently for teacher responses, follow teacher delivered instructions, solicit assistance, greet others, and make requests, among others (Table 2). Twelve preschool life skills targets across 4 domains were evaluated in the current study. Domains included instruction following, functional communication, tolerance of denial and delay and friendship skills. Each domain contained 3

preschool life skills. When correct Preschool Life Skills occurred in any condition, the teacher delivered descriptive praise. For example, if the teacher called the participants' name and the child oriented toward the teacher and responded "yes", the teacher would say "I love how you looked at me and said yes when I called your name." Consequences for incorrect responses depended on the condition in effect (see below). The teacher delivered all instructions, participated in data collection, provided descriptive praise, and implemented error correction (when applicable) for all participants during sessions. Assistant teachers participated in data collection, provided descriptive praise, and helped arrange evocative situations during PLS teaching trials.

Baseline, Post Unit Teaching Probes, and Final Mastery Unit Probe

Baseline sessions and post unit teaching probes were run identically. Either 2 or 3 trials were conducted per PLS, per participant. The number of trials was dependent on participant responding. If the participant responded correctly or incorrectly on 2 consecutive occasions within the probe for the same skill, the 3rd trial was not conducted for that participant. If the participant emitted the correct PLS during one of the first two, the third trial was conducted. During baseline and post unit teaching probes, there were at minimum 144 opportunities to observe the participants during contrived evocative situations and at maximum 216 overall.

Prior to participant arrival, 6 highly preferred activities were arranged within the academic area. Activities were arranged in stations that had enough room for 3-4 children to participate in each activity. Activities were arranged both at tables and on the floor. Activities that were arranged on the floor were spaced approximately 2-3 feet apart from one another. When the stations were ready, participants entered the room and selected an activity. When all participants had been engaged in their preferred activities for a minimum of 3 minutes, the

teacher in the classroom arranged for specific evocative situations (see Table 2 for a description) to occur during the 30-minute session. For example, if the targeted PLS was to say “ok” when instructed to wait after requesting a preferred item, teachers would arrange play stations such that components of the preferred activities were missing, to ensure the proper establishing operation (EO) was present. If participants engaged in the targeted preschool life skill (PLS), the teacher would provide descriptive praise. If the participant did not engage in the targeted PLS, the teacher would move on to the next trial for the next participant. If the participant did not orient towards the teacher and respond, the teacher would call another child’s name to begin a new trial for a new participant. Trials were never presented consecutively for the same participant. If the participants engaged in problem behavior (which would be scored as errors of commission), the teacher implemented the aforementioned reactive behavior management strategies (the can system).

Three-Tier Instructional Approach: General Procedures

The three -tier instructional approach involved three levels of instruction with progressively increasing levels of support. The first of the three instructional approaches was tier 1 instruction. Tier 1 instruction consisted of class-wide instruction in which 5 to 9 students participated. The second instructional tier involved small-group teaching for 2 to 4 students per session. Finally, the third tier, individual instruction, involved 1:1 student/teacher ratio during teaching. The instructional tiers differ by the number of peers present for each student during instruction, ranging from 8 peers present in the first tier, to none in the third tier. Figure 1 shows a flow chart demonstrating the sequence of introduction and criterion for mastery for all components of instruction throughout PLS. Teaching during tier 1 and tier 2 level instruction

consisted of large or small group instruction involving role play, followed by 10 one-to-one teaching trials.

During tier one, each skill required 90 trials overall. Given the time constraints of two 30-minute sessions per day, not all trials were conducted in the same session. When all trials could not be completed in one session, teaching continued in the next session.

Tier 1: Large Group Instruction

Large group (i.e., class-wide) instruction consisted of circle time, followed by play stations. During circle time, students would initially sit in a half circle facing the white dry erase board in the academic area with their backs to the play stations. Circle time consisted of behavioral skills training (BST) and 3 teaching trials which were presented while the students were seated in a half circle. During BST the teacher would first establish attending among all participants by stating, “Eyes on me” and waiting for all students to make eye contact. Descriptive praise was provided for eye contact. When attending had been established, the teacher provided a clear and concise description of the target PLS accompanied by a visual prompt presented on the white board (see Figure 2 for visual prompts used throughout the study). The teacher directed the participants to attend to the visual prompt by pointing to the visual stimulus after establishing attending, but prior to providing the PLS description. The teacher would also point to the visual prompt while providing the description, the first component of BST. The second component of BST included providing one model of the target PLS. The third component of behavioral skills training included providing each participant with one opportunity to role play the targeted PLS. If the participants responded incorrectly (failure to initiate response within 3 s, or emitting an incorrect response topography) during role play, the teacher would

repeat the sequence of description plus visual prompt, model, and role play until the participant responded correctly.

When all the participants had an opportunity to role play with the teacher, three opportunities were arranged within the circle for the participants to engage in the targeted PLS. Trials conducted within the circle were identical to role play opportunities provided during teaching at play stations, with the exception that highly preferred items were available. Error correction was also identical to teaching during the 3 trials. The three trials within the circle were incorporated in order to provide participants with opportunities to engage in the targeted preschool life skills immediately following initial presentation of the skill, and in a slightly more controlled setting than the play stations. This approach (3 trials within the circle, prior to 7 trials in play stations) was implemented for 10 of 12 preschool life skills. Skills 8 and 11 (see Table 1 for description of PLS) did not lend themselves to within-circle trials. With respect to skill 8, teachers could not ensure that the appropriate EO was present to emit the targeted skill. Regarding skill 11, it was not feasible to present 18 novel individuals for all 9 participants (18 trials). After three trials had been conducted, students were dismissed to play stations and instructed to select a preferred activity. Prior to the delivery of the remaining seven trials, participants were monitored for active engagement in their selected activities for at least 3 minutes. BST trials were then implemented in the manner described above. Otherwise, the play stations were arranged in a manner identical to baseline and post unit teaching probe sessions. When 30 minutes elapsed, the session ended. If all trials were completed, the next session would start with either additional tier 2 or tier 3 instruction for the targeted PLS (as dictated by participant performance), or introduction of the next PLS.

A participant was considered to have mastered a PLS if they scored 80% or higher during teaching (this includes 3 trials within circle time and 7 trials conducted in play stations). If participants achieved mastery in tier 1, their next session would be the introduction of the next PLS target in the sequence within the same instructional level. If some participants did not meet the mastery criterion, their next session would be conducted in a small group instruction context, targeting the same PLS. If all trials were not completed, the subsequent session would begin with an abbreviated circle time in which the teacher would only provide the first component of behavior skills training, the PLS description. Thereafter, the remaining play station trials were conducted as described above.

Tier 2: Small Group Instruction

Small group instruction was identical to tier 1 (large group/class-wide instruction) with the exception that there were at minimum 2 peers present during instruction and at maximum 4. If participants met mastery in small group instruction, the next PLS target was introduced in tier 1 instruction (large group). If a participant scored below 80%, their next session consisted of tier 3 instruction for the same PLS.

Tier 3: Individual Instruction

Individual instruction consisted of instruction at a 1:1 student/teacher ratio. Instruction incorporated behavioral skills training, identical to that implemented in large and small group instruction, and 6 one-to-one teaching opportunities. The participant was instructed to select a highly preferred activity. As in previous phases, we waited for three minutes of active engagement prior to arranging evocative situations for the targeted PLS. During individual instruction, 6 trials were presented using progressively increasing intertrial intervals (ITIs). Progressively increasing intertrial intervals differed from trials presented in large and small

group instruction in that ITIs were increased following each response opportunity (Francisco & Hanley, 2012). Following the initial response opportunity, trials were initiated 3 s, 10 s, 30 s, 2 min, 4 min, and 16 min after termination of the previous trial. Trials were terminated when the participant either responded correctly when presented with an opportunity to engage in the targeted PLS, or responded correctly to the error correction prompt. Error correction was identical to that of both large and small group instruction. Participants reached mastery in individual instruction if they responded correctly during at least 80% of trials conducted. When participants mastered skills in individual instruction, the next PLS target was introduced in tier 1.

Booster Sessions

As mentioned previously, PLS sessions lasted 30 minutes, and depending on the tier of instruction, the number of trials presented during teaching for each skill for all 9 participants on each occasion ranged from 90 (large group instruction) to 6 (individual instruction). Because of the large number of trials, it was not always possible to complete all planned trials during one session. That being said, teaching still only occurred once, per skill, for tiers 1 and 2. If we were not able to complete all trials in the same session, trials would resume at either 1:30 pm the same day, or 9 am the following day. These sessions were considered booster sessions. They provided a brief review of instruction previously provided, but did not constitute a second attempt to teach the skill, because no model was provided and participants were not provided with an opportunity to role play the targeted response with the teacher. Instead, the teacher simply established attending, pointed to the visual stimulus on the white board, and stated the clear and concise description of the PLS. Play station trials then proceeded as described before.

Maintenance Trials

Due to all teaching trials occurring in close temporal proximity (within 30 min), 2 maintenance trials were conducted 24 hrs. post-mastery. This additional measure was included to demonstrate maintenance of skill acquisition past PLS sessions. Because post-unit teaching probes occurred after every third PLS that was taught, maintenance trials were only conducted for skills 1, 2, 4, 5, 7, 8, 10, and 11.

Re-teach

If participants did not meet mastery during post-unit teaching probes, the teacher would re-teach the skill(s) missed. The tier of instruction provided during reteach was dependent on the number of participants that also failed the skill. For example, if only one student failed a particular PLS, re-teach would occur in the individual instruction tier. If four students failed to emit the correct PLS for the same skill, reteach would occur in the small group instruction tier, and if 7 students failed to emit the correct PLS, re-teach would occur in the large group instruction tier. When participants mastered reteach, they resumed instruction and were introduced to the next preschool life skill.

Final Maintenance Unit Probe

One maintenance probe was conducted 4 weeks after the final post-unit teaching probe and re-teach were conducted. These measures were collected to demonstrate long term maintenance. Procedures were identical to baseline and post unit teaching probes.

Experimental Design

A multiple probe design across skills was used to determine the effectiveness of the 3-tiered instructional approach on skill acquisition and problem behavior (errors of omission and commission). Probes and teaching differed in that probe sessions included only play station trials, and no error correction occurred.

We taught 12 preschool life skills across 4 instructional units (see table 1 for specific preschool life skills taught and their corresponding units). Baseline probes, post unit teaching probes, a 3- tiered instructional approach, and maintenance trials were conducted throughout the study sequentially (see Figure 1). When initial baseline measures were obtained, tier 1 instruction was introduced. If large group instruction was unsuccessful at teaching the targeted PLS, tier 2 instruction was implemented. If small group instruction was also insufficient to teach the targeted PLS, the participant was presented with tier 3 instruction. Once all participants demonstrated mastery in the first 3 preschool life skills (Domain 1: Instruction Following), teachers conducted post unit teaching probes which were identical to baseline probes. If students failed skills within particular domains during post unit teaching probes, re-teaching occurred. When students achieved mastery in re-teach, a new preschool life skill domain was introduced. As with domain 1, tier 1 instruction was conducted first to introduce the new PLS. Subsequent tiers of instruction were introduced as necessary thereafter. When all 3 skills in domain 2 (functional communication) had been taught, post unit teaching probes were conducted again. This sequence continued with domain 3 (tolerance of denial and delay) and domain 4 (friendship skills).

CHAPTER 3

RESULTS

Figure 3 shows the results of baseline and post-teaching unit probes for all participants. Each bar in Figure 3 represents one participant and each cluster represents one probe. Bars present above the x-axis (0 %) demonstrate percent of correct responding, while bars extending below the x-axis show percent of incorrect responding (errors of omission and commission). As depicted in Figure 3, participants' responding during baseline and post teaching unit probes remained below 67% for all participants until instruction was introduced and mastery was achieved, demonstrating that the participants acquired the 12 preschool life skills, and showing corresponding decreases in errors of omission and commission. Additionally, the final maintenance unit probes demonstrated that the intervention was sufficient to maintain responding when assessed 4 weeks later. Re-teach was necessary for three of 12 skills (5, 11, & 12). Overall, participant responding persisted throughout unit probes.

Figure 3 also demonstrates that unit 2 skills (functional communication) were emitted less reliably compared to other units following instruction. This became apparent when a moderate decrement in responding was observed in the presence of a new assistant teacher. This particular assistant engaged in different tasks than the original assistant teacher to demonstrate diverted attention. For example, upon initial instruction, the lead teacher would instruct the student to request an item from a particular teacher. The assistant teacher would appear busy engaging in adult tasks such as talking to another individual, typing on the computer, writing, reading, etc. In addition to being engaged in "adult tasks", the assistant teacher would also turn their body away from the participant. However, the assistant teacher present during the post teaching unit probes did not have her body noticeably turned away from participants.

Tables 4 and 5 show the percentages of correct responding for each participant in the initial baseline probe and the final maintenance probe, occurring 5 weeks after instruction of the last skill in unit 4 (PLS 12) and 4 weeks after the last post-unit teaching probe. The mean percentage of correct responding across all 12 skills during initial baseline ranged from 4% to 63%. After instruction, the mean percent of correct responding for all participants across all skills ranged from 89% to 100%. Additionally, the mean percentage of correct responding per participant across skills increased. Charlie's mean percentage of correct responding across skills increased from 14% to 100%, Alan's percentage of correct responding increased from 17% to 89%, Zane's increased from 17% to 97%, Alexis demonstrated an increase from 47% to 100%, Saxon and Brandon's percentage of correct responding across skills increased by 69%, Tony's mean percentage of correct responding across skills increased by 68%, Macy's percentage of correct responding increased by 67%, and Sean's mean percentage of correct responding across all PLS skills increased by 84%.

As presented in Table 6, the mean percentages of problem behavior (errors of omission and commission) also decreased considerably when compared to initial baseline measures. During the initial baseline probe, errors of omission occurred during 24% of the trials in unit 1, 49% of the trials in unit 2, 59% of trials during unit 3, and 81% of trials in unit 4. Errors of commission occurred at 31%, 19%, 16%, and 14% for units 1-4. During the final maintenance probe, errors of omission only occurred in units 2, 3, and 4. The percentage of errors of omission decreased to 6% (unit 2), 2% (unit 3), and 3% (unit 4). Errors of omission did not occur in units 3 or 4 and decreased to 28% in unit 1 and 2% in unit 2.

Data indicated that a single exposure to tier 1 instruction was not sufficient to achieve mastery for all 12 skills for any of the participants. Thus, all 9 participants required additional

exposure to tier 2 instruction (small group) for at least 1 of the 12 preschool life skills. Six participants required tier 3 instructions at some point to achieve mastery. Thus, for three participants, tier 1 and tier 2 instruction were sufficient on all occasions. Overall, tier 2 instruction produced skill acquisition on 16 of 20 possible occasions, and tier 3 instruction resulted in skill acquisition on 17 occasions.

Figures 6 through 12 show the percentage of correct responding for each session of tier 3 instruction for each participant. As was the case with small group instruction, individual instruction was sometimes implemented due to absences, or need for re-teach (see Table 7). Those data are excluded from the following summary. Throughout PLS, 6 out of 9 participants required individual instruction at some point to achieve mastery. With the exception of Alan and Tony, participants only required 1-2 sessions of individual instruction overall. Alan exhibited errors of commission during large group instruction during 50% of tier 1 instruction session. Problem behavior increased during sessions as the study progressed, and was also noted in his primary classroom. We suspected that an intervention put in place to decrease motor and vocal stereotypy produced an extinction burst, accompanied by variable and elevated rates of problem behavior. Tony required individual instruction on three occasions. Notably, the number of sessions required during individual instruction decreased with each skill taught (Figure 7).

Social Acceptability Measures

As stated previously, the participants in this study were recruited from 3 different classrooms within a private school for children with complex developmental disabilities. Social validity measures were only collected from teachers who regularly interacted with the participants in their classrooms, but did not participate in data collection or running sessions as any time during the study. Therefore, 3 out of 7 teachers completed the social validity evaluation

(see Table 8). Overall, social acceptability measures were high across the teachers, with all teachers providing a range of ratings of 6-7 for all questions asked. This indicates that they felt that the tiered PLS intervention would be beneficial for all students, that the skills lent themselves to success in a classroom setting, and that they would recommend PLS instruction to other teachers.

CHAPTER 4

DISCUSSION

In the current study, we evaluated a three-tiered instructional approach to teach preschool life skills to 9 children with developmental disabilities. The first tier of instruction consisted of large group instruction followed by one-to-one teaching. The second tier (small group instruction) was implemented only when the first tier did not lead to mastery of the targeted skill. Finally, third tier of instruction (individualized, one-to-one instruction) was implemented if the second tier of instruction did not lead to mastery. The three- tiered instructional approach led to mastery of all preschool life skills and reduction in errors of omission and commission for all nine participants. While the tier of instruction necessary for mastery varied for all participants, overall improvement was noted with respect to the decrease in percentages of errors of omission and commission across all 4 instructional units.

Tier 1 (large group) instruction effectively produced skill acquisition for many of the participants, but was not sufficient to facilitate skill acquisition for all participants across all targeted skills. All participants demonstrated a need for Tier 2 instruction (small group instruction) on at least 1 occasion. Tier 2 instruction was also successful at facilitating skill acquisition for most of the participants exposed. This is consistent with previous research (Luczynski, et al. 2013) indicating that smaller ratios of instruction can prove to be beneficial in skill acquisition for typically developing children.

In this adapted version of preschool life skills for children with developmental disabilities, participants exposed to tier 3 instruction achieved mastery for each skill within 1-3 sessions, indicating that progressively increasing intertrial intervals were sufficient to produce rapid skill acquisition. Of the 18 sessions in which participants were exposed to individual

instruction, 5 of them were due to the need for re-teaching (after post unit teaching or maintenance probes), 2 were due to absences, and 2 were due to default placement in the event that they were the only participant to require further instruction.

Overall, the preschool life skills package adapted for children with developmental disabilities proved to be a sufficient and efficient method for teaching all twelve skills, requiring only 37 total days (37 hours, 2- 30 min sessions daily) of instruction. Additionally, teachers whose students participated in preschool life skills sessions reported that they felt as though some improvement was observed in their classrooms as well. Furthermore, teachers reported that the skills targeted in PLS lent themselves to classroom success and they felt as though all students enrolled in their classrooms would benefit from this type of instruction.

The generalization of preschool life skills across people and settings was not directly assessed in the current study, aside from anecdotal verbal reports from participants' primary teachers indicating the observation of more socially acceptable behaviors emitted throughout the day. Future research should consider the delivery of instruction by multiple teachers, the delivery of instruction in various settings (not only play stations), and at different times throughout the day. Thus, the evaluation of generalization is important for future research.

As noted previously, the ultimate goal of this research was to identify a teaching procedure which would result in effective and efficient skill acquisition, serving as an adapted version of the preschool life skills curricula. This adaptation included a 3- tier instructional approach including tier 1 (large group & lean student/teacher ratio), tier 2 (small group & moderate student/teacher ratio), and tier 3 (individualized & rich student/teacher ratio) instruction, all including components of behavioral skills training and functional communication training. The results indicated that the three-tier instructional approach was in fact effective at

producing skill acquisition. Future research should investigate the practicality of implementing such an approach in center based care facilities, preprimary settings, Early Childhood Intervention service settings, and elementary schools. Additionally, more research should be conducted to determine the long- term effects of the program on problem behavior and social skills. Conducting post-teaching observations in children's school settings after skill acquisition in preprimary care settings could prove to be valuable information indicating the extent to which the preschool life skills programs supports and facilitates school readiness.

Throughout all instruction conducted in PLS (tiers 1, 2, and 3) visual prompts were provided. Future research should consider further investigation into the specific role of the visual stimuli (picture prompts). It would be interesting to identify the effect of picture prompts on skill acquisition and maintenance. If the visual stimuli were continuously present throughout teaching and probes, what effect would that have on how long the behavior persists post- teaching? Furthermore, what would responding look like in the absence of visual stimuli during instruction?

It should also be re-iterated that all professionals (teachers and assistant teachers) working with children in this study were bachelor's level employees and had at minimum 3 years of experience providing behavior analytic services for children with complex developmental disabilities. This is of importance to note because not all individuals working with children with developmental disabilities in educational or clinical settings meet these qualifications, nor do they have the same professional experience and training. Although our staff are trained and specialized, training on the implementation of preschool life skills was easily conducted. Professionals from other fields could also be taught to implement the preschool life skills program with ease.

As Hanley et al. (2007) stated, “in addition to the dose of the program and criterion for introducing the next skill, the evocative situation may need to be adjusted as well...” (p. 294). Anecdotally, throughout the study, it seemed that while compliance with adult directed instruction improved, generalization to peer interactions was not observed. After children acquire compliant responding with adults, it may be beneficial to include evocative situations that present the child with an opportunity to abide by a peer’s request and statements such as “please give that back” or “please stop”.

Children with developmental disabilities commonly exhibit deficits in social domains. Social behaviors such as eye contact, greetings, departure statements, or acknowledging others’ statements often do not come about naturally. Consideration for advancement in academic programs (school readiness) and quality of life may be significantly diminished due to these deficits. Quality of life is a more precarious issue when referring to problem behaviors emitted, which can take the form of mild disruptions, to severe life threatening behaviors. Therefore, effective programs that teach social skills, functional communication, delay tolerance, and other behaviors that are likely to reduce the risk of problem behavior, are essential.

PLS was originally created to serve as a preventative intervention for problem behavior in non-maternal preschool settings, and the current study sought to identify a teaching procedure to adapt it for developmentally delayed individuals while addressing skills identified as positive indicators for school readiness. Further investigation regarding the development of adolescent and adult versions of “preschool life skills” could prove to be invaluable if the appropriate targets are identified. Facilities comparable to non- maternal care centers are utilized for populations and age groups other than preschool aged children (as shown by the current study) and problem behavior is not specific to the age group originally targeted. Adults with

developmental disabilities assigned to care facilities engage in various topographies of problem behaviors and demonstrate deficits in social skills (Corrigan, 1991, Zarcone, Iwata, Vollmer, Jagtiani, Smith, & Mazaleski, 1993), the development of a set of skills aimed to address functional communication, tolerance, and engagement could significantly improve the quality of life for both patients and staff in assistive care facilities. Additionally, PLS could be adapted to teach a more sophisticated level of social interactions amongst higher functioning peers. After the twelve preschool life skills identified in the current study (or the 13 preschool life skills identified by Hanley et al., 2007) have been acquired, identifying additional skills to continue building children's repertoires, while minimizing problem behavior, would be potentially important. For example, in the current study, teachers delivered all of the statements indicating access to items/activities were denied. In typical school settings and within the general community, it is likely that peers may impose denials and delays to preferred items. Situations such as these occur naturally and are likely to evoke problem behavior, making this an appropriate, but more sophisticated, life skill.

Hanley et al. (2007) indicated that "preparing preschool children for the social complexities they will experience during their transition from preschool to elementary school is perhaps the most important task of early childhood educators" (p. 295). It follows that it is imperative that professionals teaching children with developmental disabilities adapt and respond. To the extent that social skills are indicators of classroom readiness and instructional success (Heaviside & Ferris, 1993; Lin, Lawrence & Gorell, 2003; Piotrkowski, Botsko & Matthews, 2001), we must ensure that these skills are targeted and taught effectively. When preparing children with developmental disabilities for classroom instructional settings, these skills should be prioritized. The current study provides a comprehensive approach for providing

the preschool life skills curriculum to children with developmental disabilities. Further research needs to be conducted to evaluate the long-term effects of this modified curriculum.

Table 1

Participant Demographics Including Age, Gender, and Diagnosis

Participant Demographic Information			
Participant	Age	Gender	Diagnoses
Alan	7	M	Autism
Charlie	7	M	Autism
Alexis	3	F	ODD
Macy	7	F	Autism
Brandon	6	M	Global Developmental Delay
Tony	9	M	Down Syndrome
Sean	6	M	Autism
Saxon	6	M	Autism
Zane	8	F	Autism & Speech Apraxia

Table 2

A Description of the 12 Preschool Life Skills Taught and their Corresponding Units of Instruction

Descriptions of Preschools Life Skills by Unit of Instruction

Unit of Instruction	Skill	Description
Unit 1: Instruction Following		
	1	Child Responds "yes", to name being called within 2 sec.
	2	Child initiates compliance with a single-step instruction within 3 sec. and completes task in a timely manner.
	3	Child initiates compliance with a multi-step instruction within 3 sec. and completes task in a timely manner
Unit 2: Functional Communication		
	4	Child requests assistance with a difficult task within 45sec of encountering the dilemma.
	5	Child makes a request for attention appropriately by saying "excuse me" and tapping the individual on the back or shoulder 1-3 times.
	6	Child makes an appropriate request for attention. Once attention is obtained, child emits a framed request.
Unit 3: Tolerance of Denial and Delay		
	7	Child says "ok" and waits nicely for a variable 30-90 sec. when a delay is imposed by an .
	8	Child says "ok" and either continues with their activity as is or accepts suggested alternative when an adult denies a request, but provides a different item or activity.
	9	Child says "ok" and continues on with classroom routine when instructed to terminate a preferred activity.
Unit 4: Friendship Skills		
	10	Child says "thank you" within 5 sec. of receiving something.
	11	Child greets a newcomer within 10 sec. of their arrival.
	12	Child offers toys/ materials to participate within 10 sec of newcomers arrival.

Table 3

The Percent of Sessions in which Interobserver Agreement (IOA), Treatment Integrity Data (TI), and IOA of TI Sessions were Obtained and the Average and Range of Agreement Obtained

Percent of Sessions in which Data were Collected					
IOA		Treatment Integrity		IOA for Treatment Integrity	
% Total Sessions	69.0%	% Total Sessions	57.0%	% Total Sessions	43.0%
% Baseline Sessions	58.0%	% Baseline Sessions	48.0%	% Baseline Sessions	48.0%
% Probe Sessions	72.0%	% Probe Sessions	44.0%	% Probe Sessions	44.0%
% Lg Group Sessions	71.0%	% Lg Group Sessions	89.0%	% Lg Group Sessions	53.0%
% Small Group Sessions	80.0%	% Sm Group Sessions	80.0%	% Sm Group Sessions	63.0%
% Individual Inst. Sessions	43.0%	% Ind. Instruction	58.0%	% Ind. Instruction	57.0%
Average and Range of Agreement Obtained					
Average	98.0%	Average	100.0%	Average	99.8%
Range	86%-100%	Range	N/A	Range	91-100%

Table 4

Percent of Correct Responding during Initial Baseline Probes

Correct Responding across Children during the Initial Baseline													
Prechool Life Skills													
Child	Responding to name within 2sec.	Comply with single step instruction within 3	Comply with multi-step instruction within 3 sec.	Requesting assistance within 45sec of instruction delivery	Requesting attention appropriately	Framed requesting to adults	Tolerating delays imposed by adults	Tolerating denial imposed by adults	Tolerating termination of preferred activity imposed by adults	Saying "thank you" within 5 sec of receiving an item from someone	Acknowledging others	Offering and sharing	Mean Across Skills
	1	2	3	4	5	6	7	8	9	10	11	12	
Charlie	0%	33%	67%	33%	0%	0%	33%	0%	0%	0%	0%	0%	14%
Alan	0%	33%	0%	33%	0%	67%	0%	67%	0%	0%	0%	0%	17%
Zane	0%	67%	0%	67%	33%	0%	33%	0%	0%	0%	0%	0%	17%
Alexis	0%	100%	67%	67%	0%	0%	33%	100%	100%	0%	33%	67%	47%
Saxon	100%	100%	100%	33%	0%	0%	0%	0%	33%	0%	0%	0%	31%
Bradon	0%	100%	100%	33%	0%	67%	33%	33%	0%	0%	0%	0%	31%
Tony	0%	33%	33%	0%	67%	0%	0%	67%	0%	33%	0%	0%	19%
Macy	0%	100%	100%	0%	0%	33%	0%	67%	0%	0%	0%	0%	25%
Sean	50%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	13%
Mean Across students	17%	63%	52%	41%	11%	19%	15%	37%	15%	4%	4%	7%	

Table 5

Percent of Correct Responding during Final Maintenance Probe

Correct Responding across Children during Final Maintenance Probes													
Prechool Life Skills													
Child	Responding to name within 2sec.	Comply with single step instruction within 3	Comply with multi-step instruction within 3 sec.	Requesting assistance within 45sec of instruction delivery	Requesting attention appropriately	Framed requesting to adults	Tolerating delays imposed by adults	Tolerating denial imposed by adults	Tolerating termination of preferred activity imposed by adults	Saying "thank you" within 5 sec of receiving an item from someone	Acknowledging others	Offering and sharing	Mean Across Skills
	1	2	3	4	5	6	7	8	9	10	11	12	
Charlie	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Alan	67%	100%	100%	67%	100%	100%	100%	100%	100%	100%	100%	100%	92%
Zane	100%	100%	100%	100%	67%	67%	100%	100%	100%	100%	100%	100%	95%
Alexis	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Saxon	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Bradon	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Tony	100%	100%	100%	100%	67%	100%	100%	67%	100%	100%	100%	100%	95%
Macy	100%	100%	67%	100%	67%	67%	100%	100%	100%	100%	100%	100%	92%
Sean	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Mean Across students	96%	100%	96%	96%	89%	93%	100%	96%	100%	100%	100%	96%	

Table 6

Mean of Errors of Omission and Commission per Unit during Initial Baseline Measures and Final Maintenance Probe

Mean Errors of Omission and Commission by Unit During Initial Baseline and Final Unit Probe		
Unit 1: Instruction Following		
	Baseline	Final Maintenance Probe
Omission	24%	0%
Commission	31%	28%
Unit 2: Functional Communication		
	Baseline	Final Maintenance Probe
Omission	49%	6%
Commission	19%	2%
Unit 3: Tolerance of Denial and Delay		
	Baseline	Final Maintenance Probe
Omission	59%	2%
Commission	16%	0%
Unit 4: Friendship Skills		
	Baseline	Final Maintenance Probe
Omission	81%	3%
Commission	14%	0%

Table 7

Skill Acquisition by Tier of Instruction, Participant Acquisition by Instruction, and Participant Exposure to Tier 3 Instruction by Default

Skill Acquisition by Instruction		
<i>Number of Skills Acquired by Tier of Instruction out of 12</i>		
Large	Small	Individual
2	4	6
<i>Number of participants which acquired skills per tier</i>		
Large	Small	Individual
0	3	6
<i>Participants exposed to tier 3 instruction by default (absences or failure to acquire)</i>		
Large	Small	Individual
N/A	N/A	4

Table 8

Questionnaire and Results of Social Acceptability Questionnaire Administered to Teachers of Participants' Primary Classrooms that did not Participate in Data Collection or Teaching

Questions and Results of the Social Acceptability Questionnaire Administered to Teachers of Participants

Questions	Responses	
	Mean	Range
The children who experienced the preschool life skills program benefitted from the program.	7	
The classroom social environment was improved because of the participant acquisition of preschool life skills.	6.3	6 - 7
The preschool life skills taught would be beneficial for all students in my classroom.	7	
The skills targeted for preschool life skills lend themselves to success in my classroom	7	
I would like to implement preschool life skills and 3-tiered instruction in my classroom	6.7	6 - 7
I would recommend the preschool life skills program to other teachers.	7	

Note. Three respondents used a 7 -point scale with the following relations: 7= *strongly agree*, 4= *not sure*, 1= *strongly disagree*.

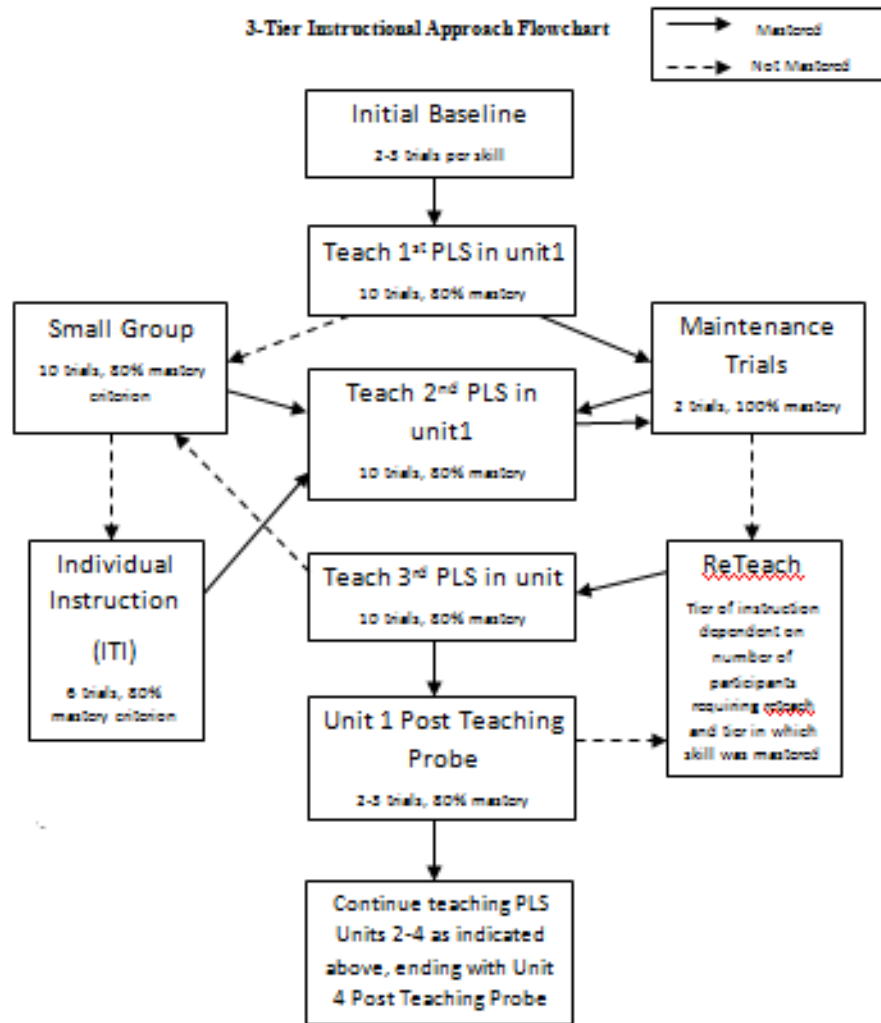


Figure 1. Flow chart of the 3-tier instructional approach. Demonstrating the sequence of introduction and process by which mastery may be obtained.

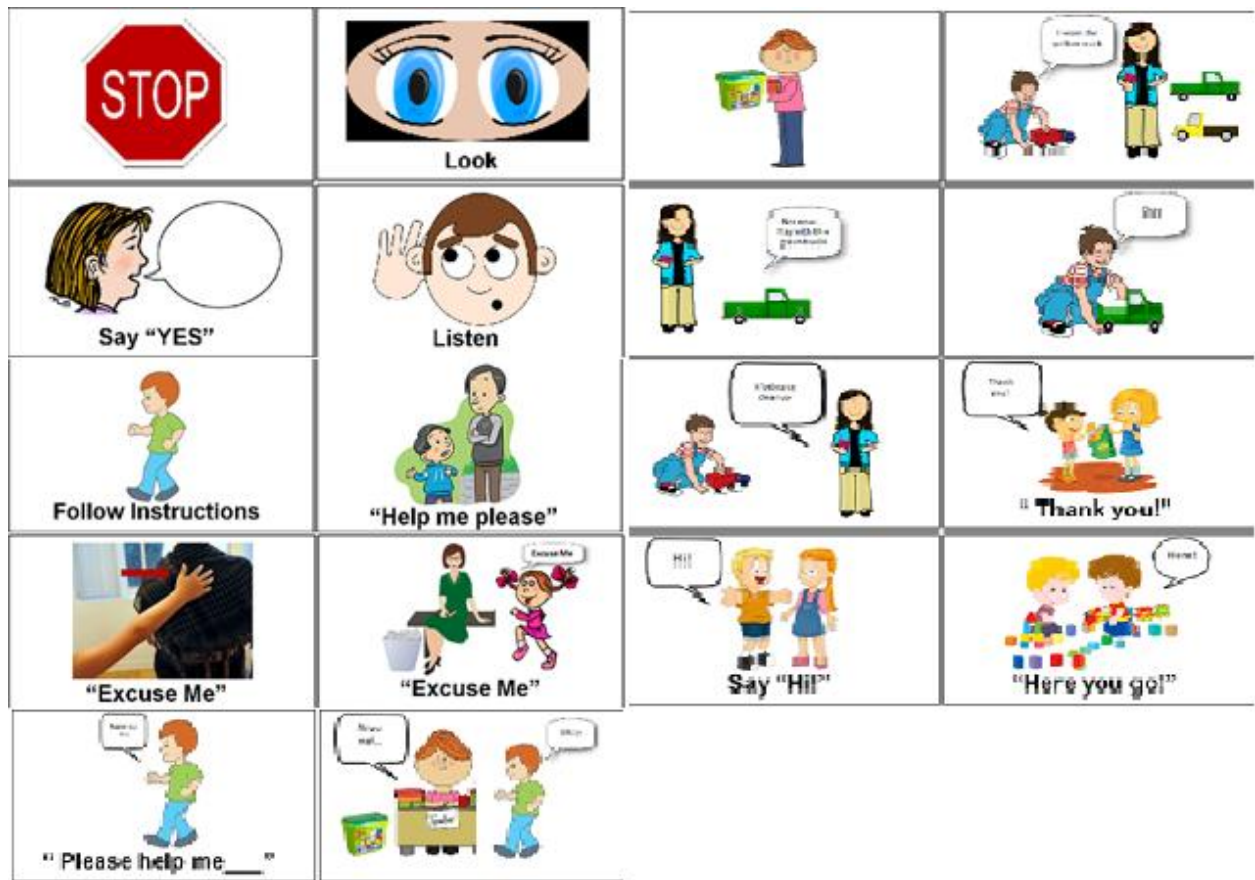


Figure 2. Visual Stimuli used as prompts during all tiers of instruction.

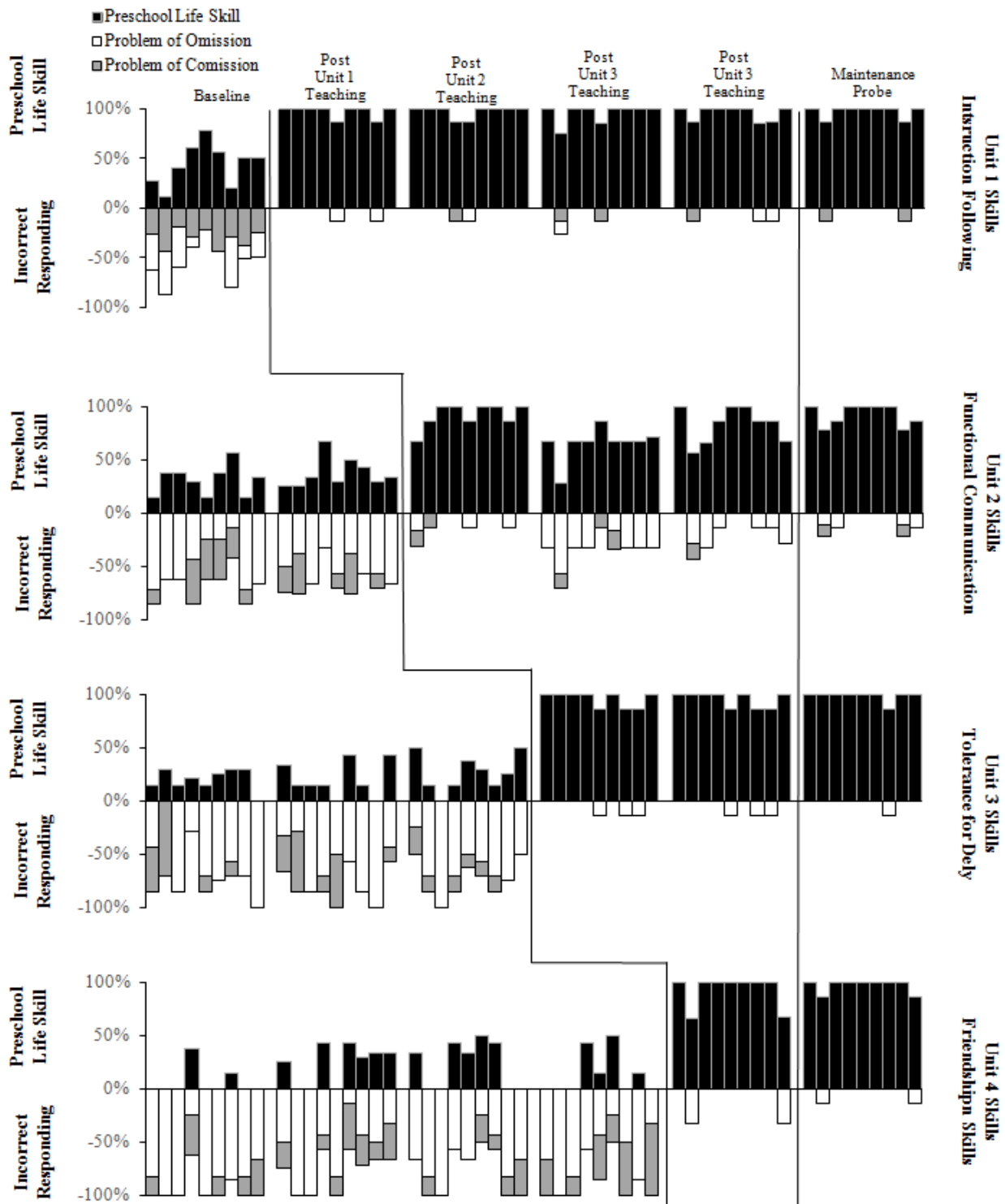


Figure 3. Percent of correct responding and incorrect responding (errors of omission and commission) during baseline, post unit teaching probes and a maintenance probe conducted 4 weeks after post unit probe 4

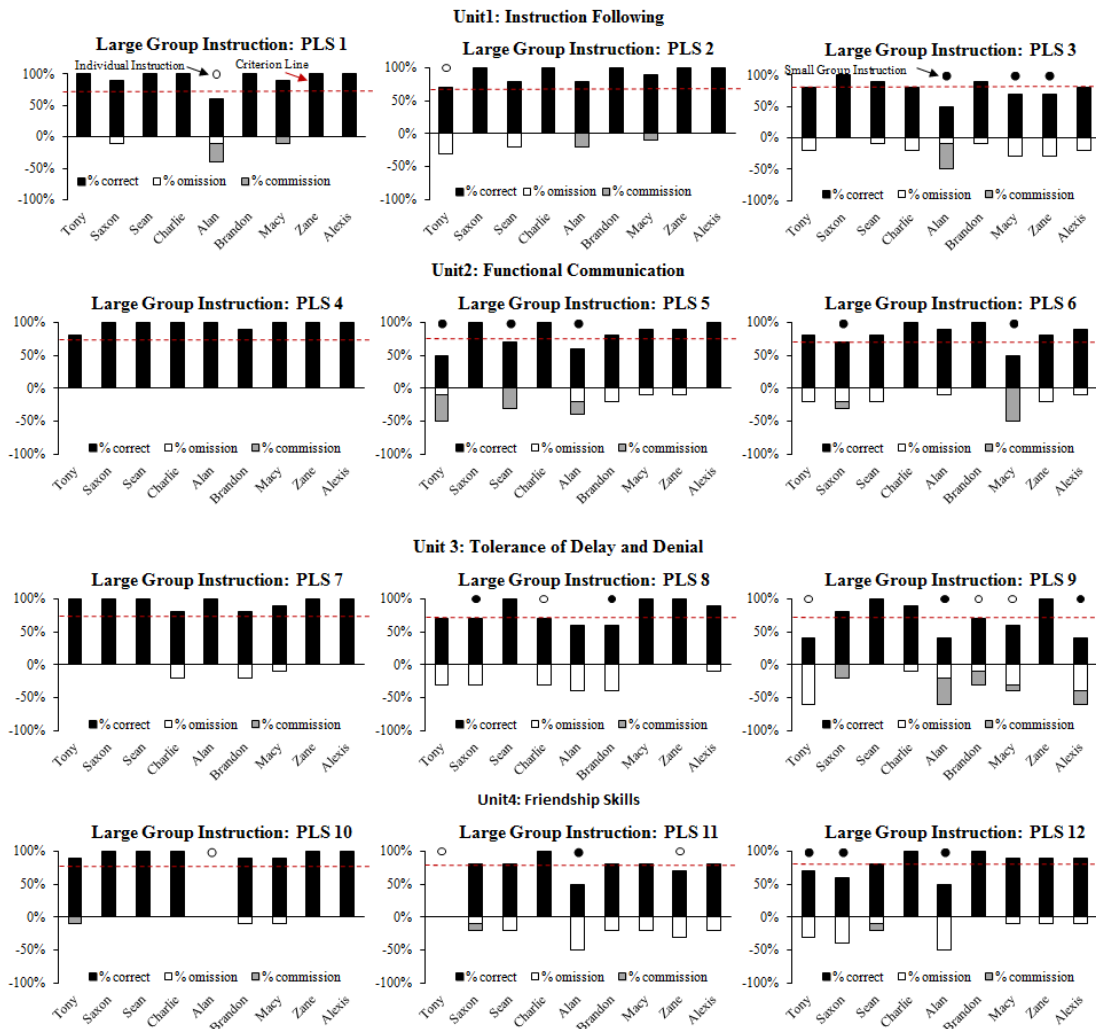


Figure 4. Participants correct and errors of omission and commission during tier 1 instruction (large group). Closed circles indicate that the skill was ultimately acquired in tier 2 instruction (small group) and open circles indicate the skill was ultimately acquired in tier 1 instruction (individual).

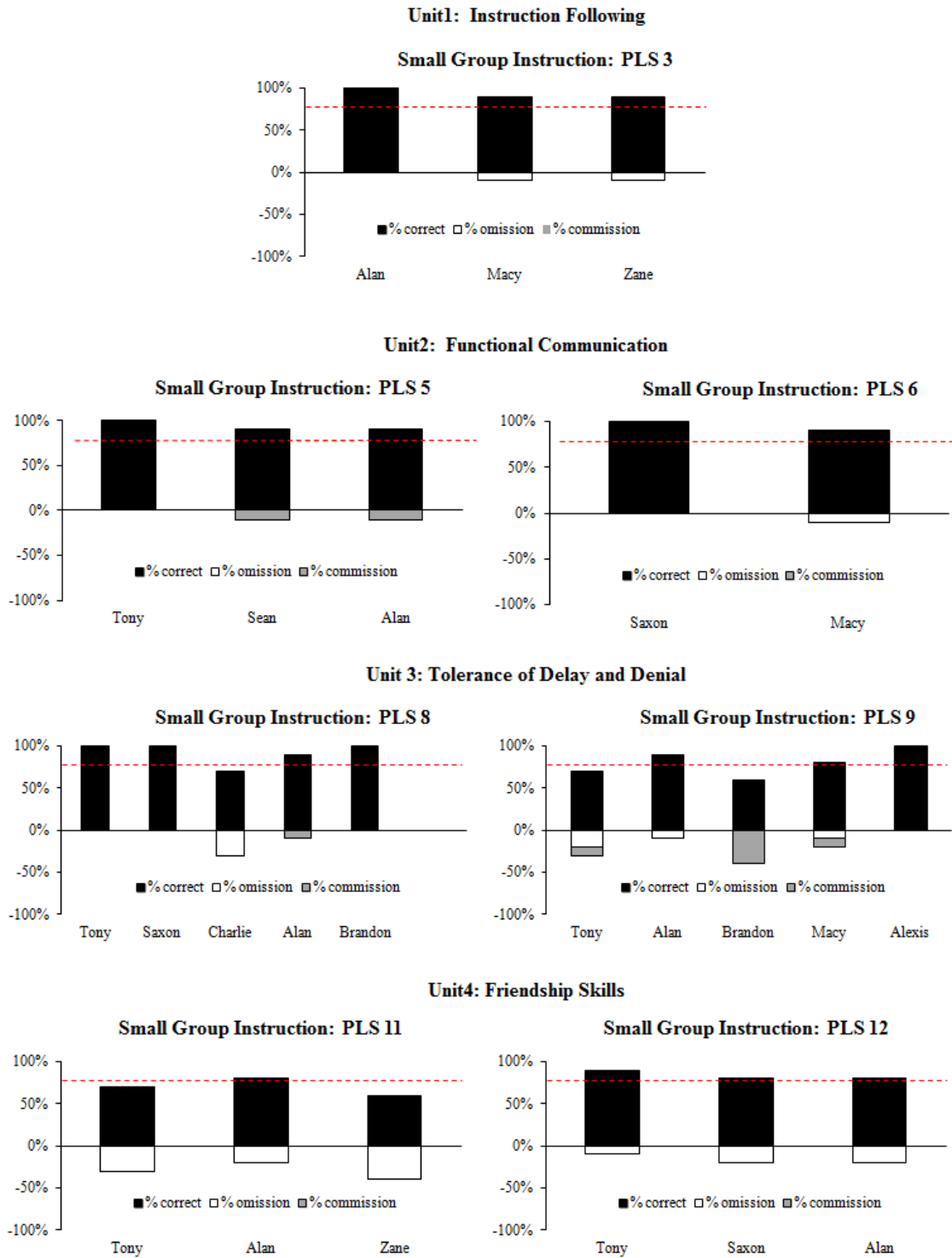


Figure 5. Participant correct responding and errors of omission and commission during tier 2(small group) instruction

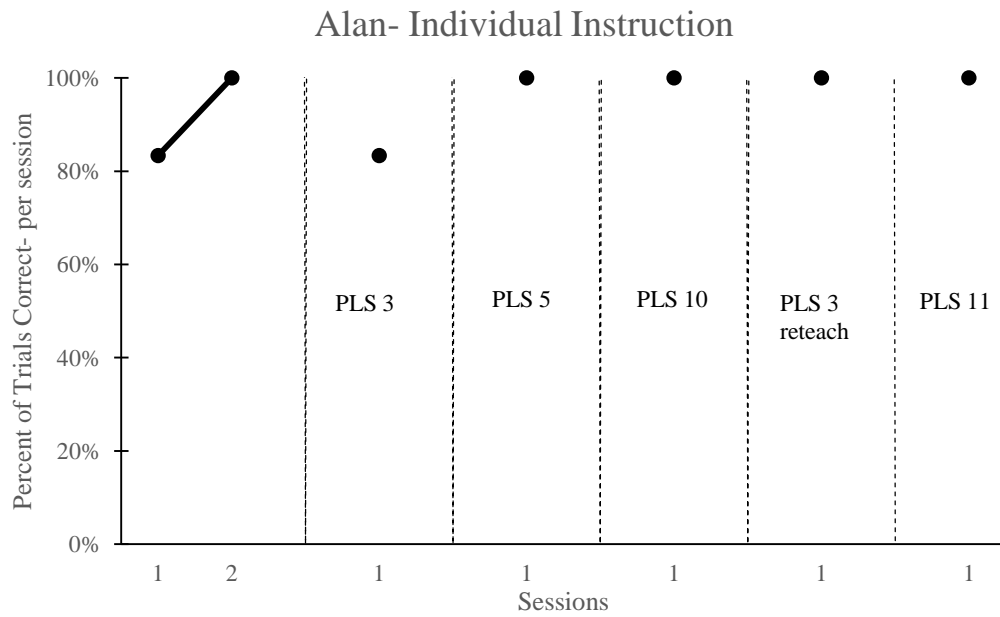


Figure 6. Percent of correct responding during all tier 3(individual) instruction sessions for Alan.

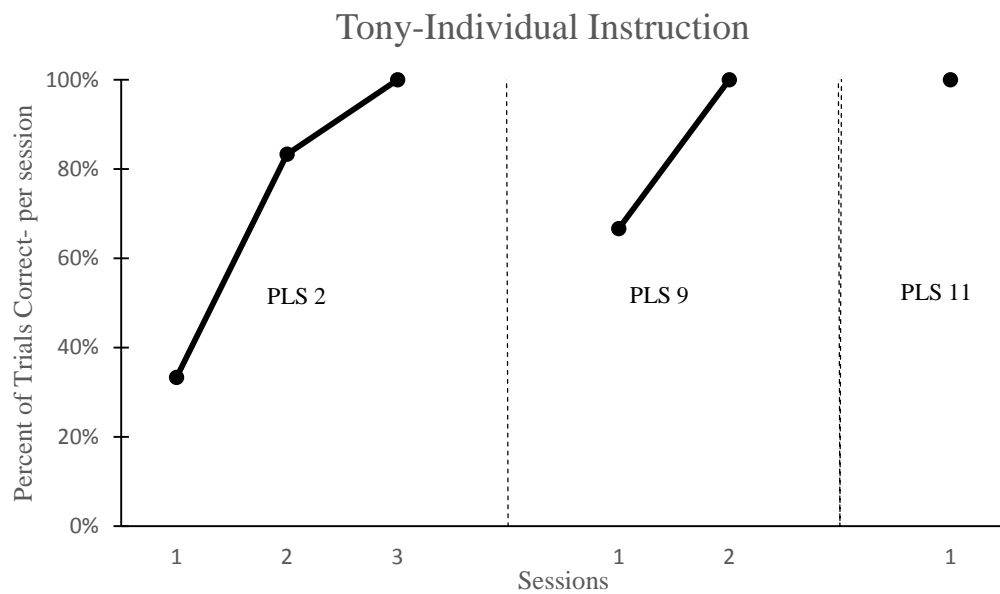


Figure 7. Percent of correct responding during all tier 3 (individual) instruction sessions for Tony.

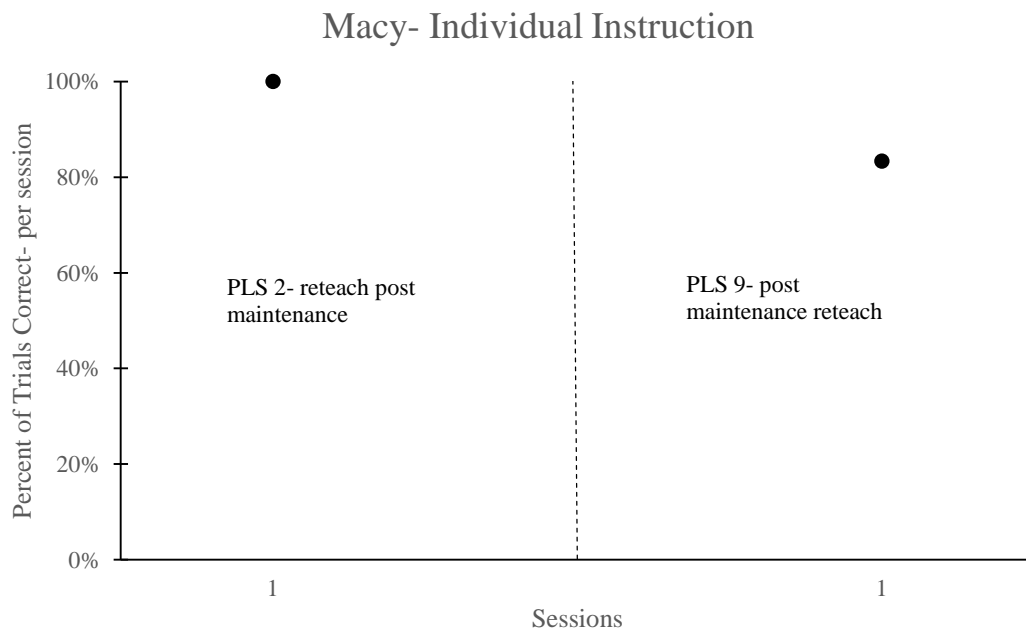


Figure 8. Percent of correct responding during all tier 3 (individual) instruction sessions for Macy.

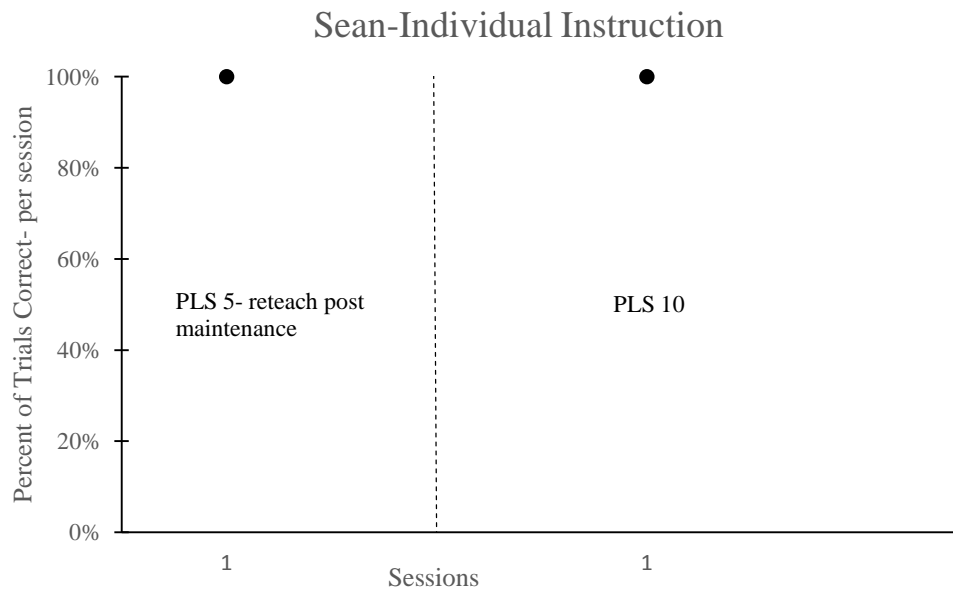


Figure 9. Percent of correct responding during all tier 3(individual) instruction sessions for Sean.

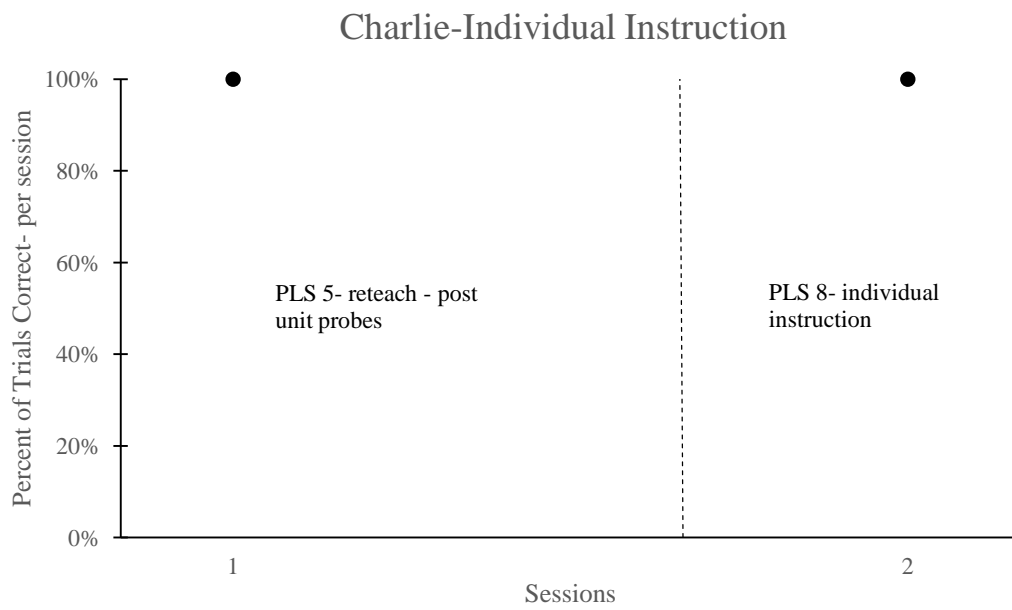


Figure 10. Percent of correct responding during all tier 3 (individual) instruction sessions for Charlie.

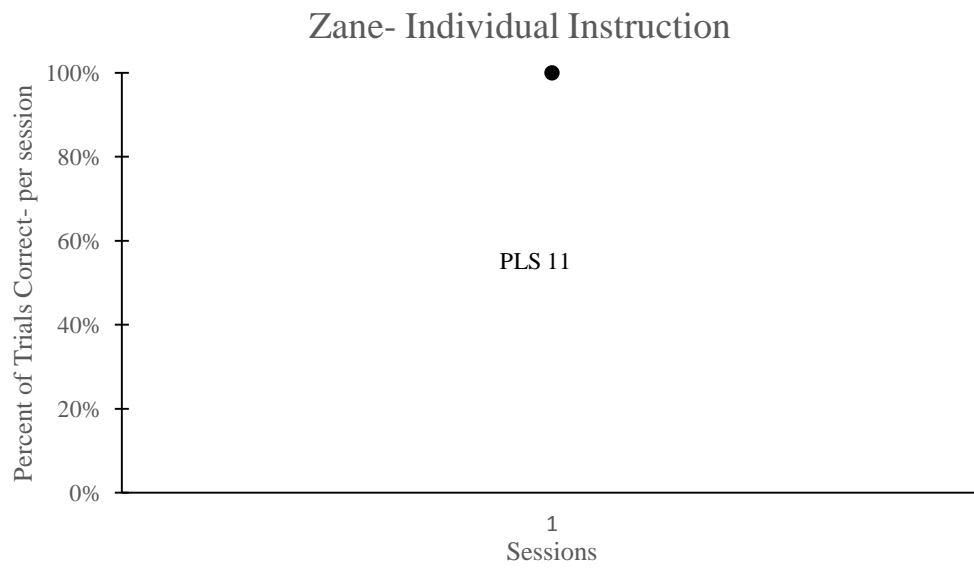


Figure 11. Percent of correct responding during all individual tier 3 (instruction) sessions for Zane.

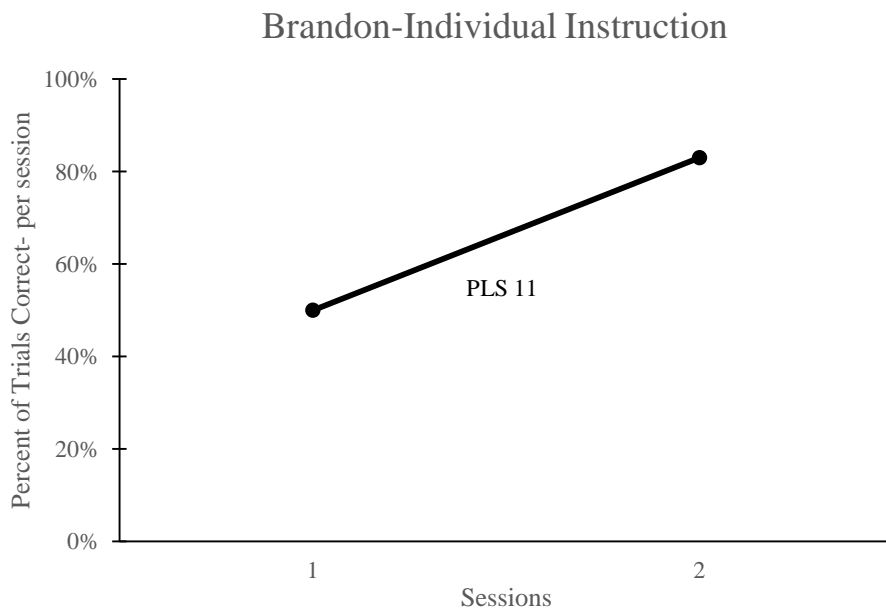


Figure 12. Percent of correct responding during all tier 3(individual) instruction sessions for Brandon.

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