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The Effects of the High-Probability Procedure on Compliance When Paired with Precision Commands

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THE EFFECTS OF THE HIGH-PROBABILITY COMMAND PROCEDURE ON COMPLIANCE WHEN PAIRED WITH PRECISION COMMANDS

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ABSTRACT

Noncompliance to teacher directions is an issue in nearly every early childhood classroom. It is necessary for young children to comply with directions so that teachers may assess their knowledge and their progress in the curriculum. Three preschool aged children ($N = 3$) with developmental delays participated in this study. The high probability command procedure was used with two children and was shown to be successful at increasing compliance. The third child did not show an increase in compliance when the high probability command procedure was used, nor did compliance increase when precision commands (escape extinction) were paired with the high probability command procedure. Positive reinforcement in the form of access to a preferred item finally increased compliance for the final participant. These findings suggest that the high probability command procedure may be an effective behavioral technique for increasing compliance in some children.

The Effects of the High-Probability Procedure on Compliance When Paired with Precision Commands

Compliance to teacher directions is a skill that is taught to the youngest of children in the classroom setting. Failure to comply can interfere with learning opportunities (Carr, Taylor, & Robinson, 1991), and ultimately negatively affect academic achievement. For example, a child who refuses to maintain a correct pencil grip may struggle with pre-writing skills in early childhood and later on, with handwriting. As another example, a child that refuses to comply with a teacher command to verbally count blocks may then struggle to build on that skill and count silently. Children with developmental delays commonly struggle with compliance to directions in the classroom setting (Lee et al. 2004).

High-Probability Procedure.

The high-probability procedure (high-*p* procedure) is a behavioral strategy that has been found to increase compliance in a variety of settings and populations (see Lee et al., 2006; Mace et al., 1988; Mace & Belfiore, 1990 for examples). This method of behavioral intervention was first discussed in the Mace et al., (1988) landmark study, "Behavioral Momentum in the Treatment of Noncompliance". The high-probability procedure consists of presenting the participant with tasks that have a high probability (high-*p*) of being completed by the participant. After complying with a series of high-*p* commands, the participant is given a single command with a low probability (low-*p*) of compliance. As a result, the likelihood that the participant will comply with the low-*p* command is much greater after compliance with high-*p* commands than if he/she is presented with the low- *p* command in isolation (Mace et al. 1988).

Mace and Belfiore (1990), found that a sequence of high-probability commands issued before a low-probability command increased compliance with task-related commands and decreased problem behavior stereotypy in a 38 year-old woman with severe mental disabilities. The experimenter presented three high-*p* commands at 10 s intervals followed by a low-*p* command. Enthusiastic praise was given for compliance to both types of commands. As compliance to low-*p* commands increased the subject's stereotypy decreased. Their study provided evidence that procedures aimed at increasing compliance can produce associated reductions in problem behavior (Mace & Belfiore, 1990).

High-probability Commands in the Classroom

The high-probability (high-*p*) procedure has also been successful in the classroom setting. Belfiore, Basile, and Lee (2008), analyzed high-*p* command sequences in classroom environments and found that a seven year-old participant with moderate mental retardation and Down syndrome showed an increase in compliance to low-*p* classroom commands when the high-*p* procedure was implemented. The participant was presented with three to five high-*p* commands (i.e. "clap your hands") followed by a low-*p* command (i.e. "come here"). The data presented showed an increase in compliance to low-*p* commands when preceded by several high-*p* commands as compared to when low-*p* commands were presented in isolation. This study demonstrates that the high probability command procedure may be useful in classroom settings.

Although the high probability procedure has been shown to be effective across settings, it is important to determine if high-probability procedures are appropriate for the situation. If the requested task is above the student's ability level, failure to comply may be due to a skill deficit, which would be addressed using teaching, rather than increasing compliance, per se. For example, if the researcher is asking the student to point to colored blocks as their low-*p* command and the child does not know their colors, interspersing high-*p* demands is unlikely to increase compliance to the low-*p* command. If the compliance issue is not a skill deficit, but is, in fact, a compliance issue, the researcher can then determine which commands have a high probability and low probability for compliance. These commands can then be used in the high-*p* procedure to increase compliance in the student.

Determining High-*p* and Low-*p*

There are several ways to determine high-*p* and low-*p* commands for a student. The percentage of correct responses, and if the student responds at all to the task command can be used to determine high and low-*p* commands (Bullock & Normand, 2006). Amount of assistance required to complete a command and frequency of compliance to a task command can also be used to determine high versus low-*p* commands. Task commands that result in tantrums or other types of internalizing or externalizing behavior such as crying, withdrawing, or aggression towards self or others in the form of hitting, kicking, biting etc., could also be considered low-*p* commands (Belfiore et al, 2008).

Protocol for Non-compliance Beyond High-*p* and Low-*p* Commands

Once the high-*p* and low-*p* commands have been determined and implementation of the high-*p* procedure has begun it is unclear what should be done if compliance does not increase. Previous research has been limited as to what to do if the high-probability procedure is unsuccessful, that is, the student remains non-compliant. For instance, Bullock and Normand (2006), ended the trial if at any time the student failed to comply with a high-*p* instruction. Mace and Belfiore (1990) ignored noncompliance. However, in the classroom setting it may not be in the best interest of the student or the teacher to allow non-compliance to occur. If non-compliance is ignored or allowed to occur, the child may fail to demonstrate skill acquisition, which would then make it difficult for the teacher to determine adequate progress towards Individual Education Plan (IEP) goals or other academic skills. The student also may not comply with directions related to safety and put themselves or others in danger.

Escape Extinction

Another strategy that has shown to be effective in dealing with non-compliance is escape extinction (Piazza et al., 2003; Zarcone et al., 1994.). With escape extinction, procedures are implemented that prevent the child from escaping the non-preferred situation, or demands that have a low probability of compliance. For example, if a child refuses to comply with the command to wash their hands, assistance will be provided in the form of hand-over-hand guidance to prevent the child from escaping the task. When escape extinction procedures are implemented, escape is no longer reinforced through task termination. A variation on escape extinction that is often used in early childhood classrooms is precision commands (Neville & Jenson, 1984).

Precision Commands

Precision commands are a three-part command sequence. If the participant complies within 10 s, his or her correct response will be recorded. If the participant does not comply, the researcher gives the command again but precedes it with "Name, you need to (low-*p* command)." Again, 10 s are given for the participant to comply with the command. If the participant still does not comply "incorrect response" is recorded and the command is given again and ends with "(command) and I will help you". Physical assistance is then given to the participant to complete the task. Physical assistance is the extinction component in precision commands in that the participant is not able to avoid or escape the commands by not complying. The participant is physically prompted to complete the requested task using the least restrictive form of assistance (i.e. hand-over-hand guidance).

Positive Reinforcement.

Yet another strategy that can be effective in dealing with non-compliance is positive reinforcement (De Leon et al., 2001). Positive reinforcement is the addition of a stimulus that will increase the likelihood that a behavior will occur. For example, a participant that is given a small edible after completing a low-*p* command may have a higher likelihood of continuing to comply with additional low-*p* commands.

The purpose of this study is to extend the current literature on high probability procedure by evaluating the effects of high-probability procedure on four year-olds with developmental delays in the regular education classroom setting.

Research Questions

Research Question 1: What were the effects on compliance when a high-probability command procedure was implemented, and when it was implemented along with precision commands?

Research Question 2: Did compliance increase more when the high-*p* procedure was paired with precision commands than when the high-probability procedure was used alone?

Research Question 3: If neither of these behavioral techniques were successful would the addition of positive reinforcement increase compliance?

METHOD

Participants and Settings

The current study was reviewed and approved by the Utah State University Institutional Review Board (IRB # 4191). Three participants (N = 3) were included in this study. All participants attended regular education preschool classrooms, were four years old, male, and had a special education classification of developmental delay. One of the areas of delay for each of the participants was in the area of social/emotional development. Students with delays in this area of development typically struggle with compliance issues (Lee et al., 2004). The delay was at least 1.5 standard deviations below the mean on the Behavior Assessment System for Children, Second Edition (BASC-2). Each participant had compliance goals included in their IEP. Instructional sessions took place in a classroom within the school. Participant 1 had cognitive, social and language goals in addition to compliance goals on his IEP. Participant 2 had cognitive, fine motor, and language goals in addition to compliance goals. Participant 3 had articulation goals on his IEP in addition to compliance and behavior goals.

Baseline and intervention sessions occurred with the participant seated in front of the teacher in a corner of the classroom. Generalization occurred in the classroom around the other students. The teacher was seated with a data sheet and pen to record data during baseline and intervention sessions and also had a Motivaider (a timing device) to cue the researcher as to when to deliver the next prompt. The researcher and participant may or may not have been seated during generalization data collection. All sessions occurred during the center time of the participant's typical schedule. Center time is a free-play time for the students, where they can choose what area of the classroom in which to play. For instance, students may play at the block center, dramatic play center, or writing center. During centers, teachers embed instructional opportunities into the play activities.

A graduate student was the primary data collector and conducted sessions. She completed necessary Collaborative Institutional Training Initiative (CITI) training on research ethics prior to the study. Prior to data collection, she reviewed operational definitions included in the study, completed practice sessions and then practiced in mock scenarios until she did so with 100% accuracy across 3 sessions.

Data Collection Procedures

During baseline, the participant was given five low-*p* commands (see page 13 for explanation of how low-p commands were determined). Sessions consisted of five trials. Data were collected on correct and incorrect responses. Correct responses were those that were completed within 10 s of the researcher's command. Incorrect responses were those commands that were not completed within 10 s.

During each high-*p*/low-*p* instructional sequence, the participant was given three high-*p* commands and then a low-*p* command. Sessions consisted of three trials. Data were collected on independent (correct) and prompted (incorrect) responses. Independent responses were defined as a participants' completion of the command within 10 s of the researcher's initial command. Prompted responses were defined as the teacher physically guiding the participant through the command after the third request. Precision commands were used when the participant failed to initiate a response after the initial prompt. Prompted responses were only implemented with Participant 3 as he was the only participant with whom precision commands were used.

Interobserver Agreement

A second independent observer collected data for 29% of sessions. The data recorded from the primary and secondary observers were compared and agreements were scored when both observers scored the same responses for a particular trial. Disagreements were scored when the observers did not score the same responses for a particular trial. Interobserver agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements for all trials and multiplying by 100%. Interobserver agreement for this study averaged 94% and ranged from 88%-100%.

Treatment Integrity

An independent observer recorded data on the proper implementation of high-*p* and low-*p* task directions and also correct implementation of precision commands. Treatment integrity was collected for 40% of Baseline and 24% of Intervention sessions. Correct performance of the task command was defined as delivering the command as discussed in the response measurement section. The percentage of correct implementation of task direction was calculated by taking the number of completed task commands divided by the total number of commands session by session.

Treatment integrity was also collected on: (a) the teacher delivering three high-*p* commands before delivering one low-*p* command, (b) teacher allowing 10 s of wait time for participant to comply with a given command, (c) teacher using only those high and low-*p* commands from the demand assessment, (d) teacher implementing precision command strategy after 10 s of wait time following the command and (e) positive reinforcement for compliance given only after high-*p* procedure and precision commands (if necessary) have been issued and task has been completed by the participant. Treatment integrity was 100% for (a), (c), and (e), and averaged 92% and ranged from 84%-100% for (b) and (d).

Research Design

A multiple baseline across participants design (Cooper, Heron, & Heward, 2007) was used to evaluate the effects of high-*p*/low-*p* task demands on participant compliance.

Baseline, High-probability procedure, High-probability procedure with precision commands (if necessary), Positive reinforcement for compliance (if necessary), and Generalization conditions were implemented within the multiple baseline design. The Baseline condition involved presenting only low-*p* commands without the preceding high-*p* commands. The Intervention phase introduced three high-*p* commands presented before a low-*p* command. The Generalization phase included three high-*p* commands followed by a low-*p* command throughout the classroom. The Baseline, High probability procedure, High probability procedure with precision commands, and Generalization phases were all implemented in the classroom environment.

Pre-experimental Procedures

High probability and low probability demand assessment. Prior to the start of baseline sessions, an assessment was conducted to determine high-probability requests and low-probability requests for the participants. Classroom teachers were interviewed to determine potential high probability and low probability requests. Then, twenty potential high probability and ten potential low probability requests were assessed. These 30 tasks (20 high-*p* and 10 low-*p*) given by the teacher were then randomized and delivered in a one-on-one situation with the participant to determine which had a 80-100% compliance rate (*high-p*) and which had a 0-40% compliance rate (*low-p*) (Killu et al., 1998). Compliance was defined as the independent completion of a response within 10 s of the stated instruction. Percentage compliance was calculated by dividing the number of compliant responses to each instruction by the total number of times that particular instruction was issued and multiplying by 100. Twenty tasks (fifteen high-*p* and five low-*p*) were used in the study.

Experimental Procedures

Baseline.

During the baseline condition, the participant was seated across the table from the researcher in a one-on-one setting. Tasks were brief and discrete in nature (e.g. "Jump", "Put the book away"). The researcher first established eye contact with the participant and then issued the low-*p* command. Trials were presented on a fixed-time (FT) 30 s schedule. A session consisted of five trials of low-*p* commands and was conducted twice per day, two to three times per week for a total of approximately four to six sessions per week.

High-Probability Procedure.

During this condition, we conducted two sessions a day for two to three times a week with three trials (a trial being three high-*p* commands and one low-*p* command) per session in a one-on-one setting in the classroom. The high-*p* procedure involved giving three high-*p* commands. After the three high-*p* commands were given, and completed by the participant, a low-*p* command was delivered. Trials were delivered according to an FT 90 s schedule with a new command being given at 10 s intervals (see Figure 5). Sessions consisted of three trials of the high-*p*/low-*p* sequence (three high-*p* commands followed by one low-*p* command). Because the purpose of this study was to evaluate the results of the high probability command procedure and as such, praise was not given during any phase of the study. Praise would have been considered an extraneous variable and may have impacted the rate of compliance and thus, could have skewed the results.

High Probability Procedure + Precision Commands.

If the participant failed to comply with the initial three consecutive high-*p* commands, a prompting response sequence was implemented to ensure the participant complied with the command (see Figure 5). If the participant complied within 10 s, his or her correct response was recorded. If the participant did not comply, the researcher gave the command again but preceded it with, "Name, you need to (low-*p* command)." Again, 10 s was given for the participant to comply with the command. If the participant still did not comply, "incorrect response" was recorded and the command was given again and ended with, "(command) and I will help you". Physical assistance was then given to the participant to complete the task. Other than the changes described, this procedure was the same as the previous condition.

Positive Reinforcement for Compliance.

A multiple stimulus without replacement (MSWO) was conducted prior to the condition to determine the preferred reinforcer (DeLeon & Iwata, 1996). In a MSWO the five items were placed in front of the participant. The participant was then allowed to choose which item they liked the most. After the item was selected it was removed, or in the case of an edible, was consumed by the participant and not replaced. The item at the left end of the line was moved to the right end of the line and the procedure was continued until all items were removed or consumed. The first item chosen was used as the reinforcer for that session. This intervention was only necessary with Participant 3. In each instance, he chose access to an iPad as his reinforcer. The selected item (iPad) was next to the teacher during the trials. Other than the changes described, this procedure was the same as the previous condition.

If the participant complied with the low-*p* command after the high-*p* procedure or before the physical guidance step of precision commands were issued then access to a preferred item was given for compliance and "independent response" was recorded. The participant was given access to a preferred item once they completed a trial (three high-*p* and one low-*p* commands). After the high-*p* procedure was completed correctly, 20 s of access was given to the preferred item before the next command sequence began (see figure 5).

Once Participant 1 reached compliance of at least 80% to low-*p* commands the researcher began implementation with the next participant. All procedures involving the additional participants were identical to those described above.

Generalization.

The generalization phase was identical to the high-*p* procedure but was conducted by additional therapists. The classrooms have 11-15 children and 3-4 adults. Commands were issued by the regular education teacher, special education teacher, and special education assistant. Additional therapists were trained on the procedures in the same manner as discussed in the Response Measurement and Interobserver Agreement section. The researcher was unable to conduct generalization with Participant 1 as he was consecutively absent for a two-week period, right before the end of the school year. Data collected after the break may not be considered valid due to the extensive amount of time Participant 1 was out of the classroom and not receiving intervention and there wasn't enough time to reestablish the effects of the intervention and conduct generalization before the school year ended. Anecdotally, the high probability command procedure was implemented with Participant 1 once he returned from his absence and continued to demonstrate increased compliance to low probability commands.

RESULTS

Figure 1 illustrates the results of the high and low probability command assessment for Participant 1. Participant 1 had 100% compliance over five trials for the following commands: tap feet, pat shoulders, stand on your name, rub tummy, thumbs up, roll hands, jump, high five, pat head, wiggle ears, wiggle fingers, knuckles, touch your nose, and sway back and forth. He had 80% compliance over five trials for the following commands: arms up, roll arms, clap, stand on one foot, and stomp. Commands that had 40% compliance over five trials were: look at the teacher, line up, give the x to x, and hands in lap. Participant 1 had 20% compliance over five trials to the commands, put the x away, pick up the x, say x, come here, and sit criss-cross. The command of “sit down” had 0% compliance over five trials.

Figure 2 shows Participant 2 had 100% compliance over five trials to the following commands: wiggle ears, pat head, wink, jump, clap, touch nose, thumbs up, blow kiss, knuckles, look at teacher, stomp, high five, pat shoulders, and rub tummy. Commands that had compliance of 80% over five trials were: shake head, roll hands, wiggle fingers, sit down, wave, and tap toes. Participant 2 had 40% compliance over five trials for the commands, pick up the x, sit criss-cross, give the x to x and raise hand. Come here, get on your name, put the x away, hands in lap, and line up were all commands that, over five trials, had a compliance rate of 20%. Participant 2 never complied to the command “get your x” over five trials.

Figure 3 illustrates Participant 3 had 100% compliance over five trials to the following commands: handshake, rub tummy, roll hands, pat head, knuckles, and stomp. Pat shoulders, shake hands, thumbs up, jump, tap toes, high five, wiggle ears, wiggle fingers, touch your nose, make a silly face, dance, touch toes, wink, and clap were all commands that Participant 3 had 80% compliance to over five trials. Over five trials, Participant 3 had 40% compliance to the following commands: stand up, stand on your name, come here, and sit down. He had compliance of 20% to the commands, stand behind x, give the x to x, hands in lap, put the x away, pick up the x, and sit criss-cross.

Figure 4 shows the compliance of Participants 1 and 2 to the high-*p* procedure and of Participant 3 to the high-*p* procedure, precision commands, and positive reinforcement. Participants 1 and 2 had improved compliance (compared to baseline) using the high-*p* procedure. Participant 3 showed no improvement with the high-*p* procedure, or with precision commands. Positive reinforcement was required to increase his compliance to low-*p* commands.

Participant 1, shown in the first graph of Figure 4, had a steady decline in his compliance to low-*p* commands during baseline. Once the high probability command procedure was implemented, his compliance increased from 40% in the first session to 80% in the final session. Data collection would have continued into generalization but an extended absence led the researcher to end the study with Participant 1.

Participant 2, shown in the second graph on Figure 4, also demonstrated a fairly steady decline in compliance to low-*p* commands during baseline. Once the high probability command procedure was implemented, Participant 2's compliance increased from 66% in the first session of intervention to 100% in the final session of the high probability command procedure. Generalization was implemented and Participant 2 continued to show a high rate of compliance of 75%-100% across sessions.

Baseline data were more variable with Participant 3, shown on the third graph on Figure 4, but still showed a decrease in compliance to low-*p* commands from 40%-0%. Once the high probability command procedure was implemented, compliance to low-*p* commands varied from 0%-100% across sessions but there was no consistent increase in compliance across sessions. The high probability command sequence was then paired with precision commands and compliance to low-*p* commands never reached above 60% with the final three sessions showing 0% compliance. Physical assistance was required 78% of the time during this condition. Positive reinforcement was introduced and Participant 3 had 100% compliance to low-*p* commands across four sessions. With the introduction of the MSWO and the subsequent placement of the selected item next to the teacher during trials in the positive reinforcement condition, Participant 3 immediately began to comply with low-*p* commands. It may be that the iPad's presence next to the teacher, and the exposure to the MSWO procedure signaled the availability for positive reinforcement for compliance. Generalization was not implemented with Participant 3 due to time constraints of the end of the school year.

DISCUSSION

This study demonstrated that the use of high-*p* low-*p* command sequences could be a promising tool for increasing compliance with some preschool aged children with developmental delays. Results demonstrated that presenting Participants 1 and 2 with commands that had a high probability for compliance increased the likelihood that they complied with the low-probability command. Moreover, building the high-probability procedure into the sequence decreased the likelihood that the low-probability command needed to be repeated.

It is remarkable that Participants 1 and 2 had compliance increases even in the absence of a reinforcement contingency. Participants 1 and 2 both had cognitive goals in addition to compliance goals whereas Participant 3 had only articulation goals in addition to compliance goals. Cognitive abilities may have had an impact on the effectiveness of the high probability command procedure in compliance to low probability commands.

The high probability command procedure was simple to implement in the classroom and was easily taught and used by the general education teacher and assistant. It was also used with other children in the classroom both typically developing and those with delays and proved to be an effective tool for several children in the classroom.

Use of positive reinforcement in the form of access to preferred items also demonstrated effective in increasing compliance in the one participant for whom the high-*p* procedure was ineffective. It should be noted that that same participant did not show improvement when precision commands were used with the high-*p* procedure. In fact, using precision commands appeared to have a negative effect in regards to behavior for that participant. Anecdotally, physical assistance provided to comply with the low-*p* command typically resulted in aggression from Participant 3 in the form of inappropriate verbal behavior (i.e. shouting) and violently withdrawing from the physical assistance, accompanied by spitting and slapping at the researcher. After this aggression Participant

3 was often unwilling to participate in trials. In the positive reinforcement condition Participant 3 was very willing to cooperate and completed commands quickly. This suggests that Participant 3 was motivated by the positive reinforcement (access to preferred item) to comply with the researcher's commands. It also suggests that positive reinforcement may have been a more appropriate first step with Participant 3 given that there were no negative side effects from reinforcement-based behavior change procedures with this participant.

Limitations

The results of the current study should be interpreted within the context of the methodology used. One limitation of this study was that generalization required a substantial amount of time that was not available due to the end of the school year. The Generalization phase was only implemented with Participant 2 and generalization baseline data were not taken due to time constraints. Based on the data, he continued to respond well to the high-*p* command procedure in the general classroom environment and when prompts were delivered by different adults.

Another limitation was the implementation of precision commands as a behavioral strategy in correlation with the high probability command procedure. The high probability command procedure was effective as an individual strategy for Participants 1 and 2 and implementation of precision commands was not necessary. Therefore, in these two cases, the researcher was unable to determine if the pairing of precision commands with the high probability command procedure was an effective behavioral technique. For Participant 3, the pairing of precision commands with the high probability command procedure was ineffective. Only when positive reinforcement was added did Participant 3 show an increase in compliance. With additional participants it may be possible that this combination would have been effective, but our data do not suggest that.

Future Directions

Future research could examine the effects of high-*p* low-*p* commands across different contexts (e.g., home, school) that preschool special children with compliance difficulties may be found. Consistency across settings is important not only for children with developmental delays but for preschool aged children in general. Implementing this research in the home setting could be very beneficial for the participant and their parents.

If the outcomes show that the high-*p* procedure was not effective in isolation, as was the case with Participant 3, it raises the possibility that other interventions used (either precision commands or positive reinforcement for compliance) may have worked without the high-*p* procedure. Another consideration is that the inclusion of the high-*p* procedure enhanced the effectiveness of those interventions. Future researchers may wish to explore that possibility.

It may also be of interest to examine the impact different disabilities may have on compliance and behavioral techniques. Participants 1 and 2 had cognitive delays in addition to their compliance issues whereas Participant 3 had articulation delays along with compliance issues. Although this study did not include enough participants to determine if this pattern is present within larger populations, if these results are representative, it may be that children with cognitive delays demonstrate increased response performance to low probability commands with the implementation of the high probability command procedure whereas children with typical cognitive abilities may respond better to positive reinforcement as a means of increasing compliance.

Summary and Conclusions

The high probability command procedure proved to be a very effective technique for increasing compliance in two of the participants in this study. The third participant was highly motivated to comply with directions if given positive reinforcement. The integrated preschool classroom has children of varying ages, abilities, and experiences. The results from this study demonstrate that there may not be one "fix all" technique for dealing with noncompliance in the preschool classroom. It is important to recognize the individual strengths and weaknesses of students to determine what behavioral strategy or strategies may work best. Once non-compliant behaviors are rectified the teacher and student are both in an optimal position to teach and to learn.

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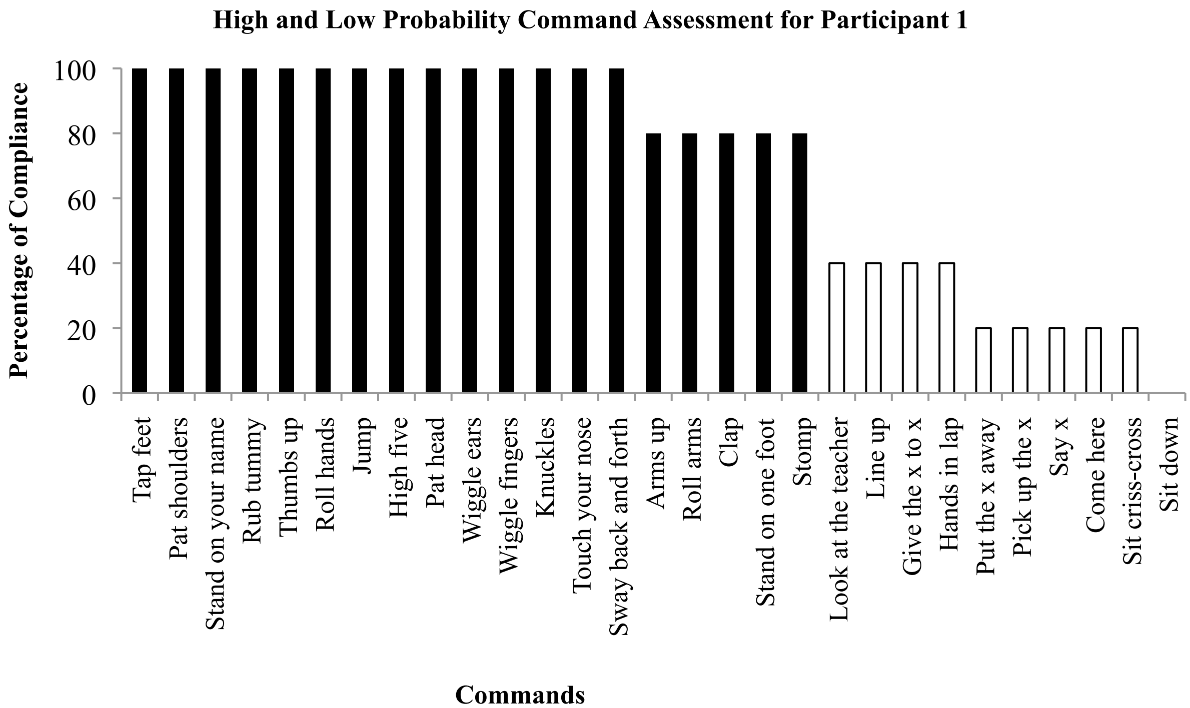

Figure 1. **High and Low Probability Command Assessment for Participant 1**

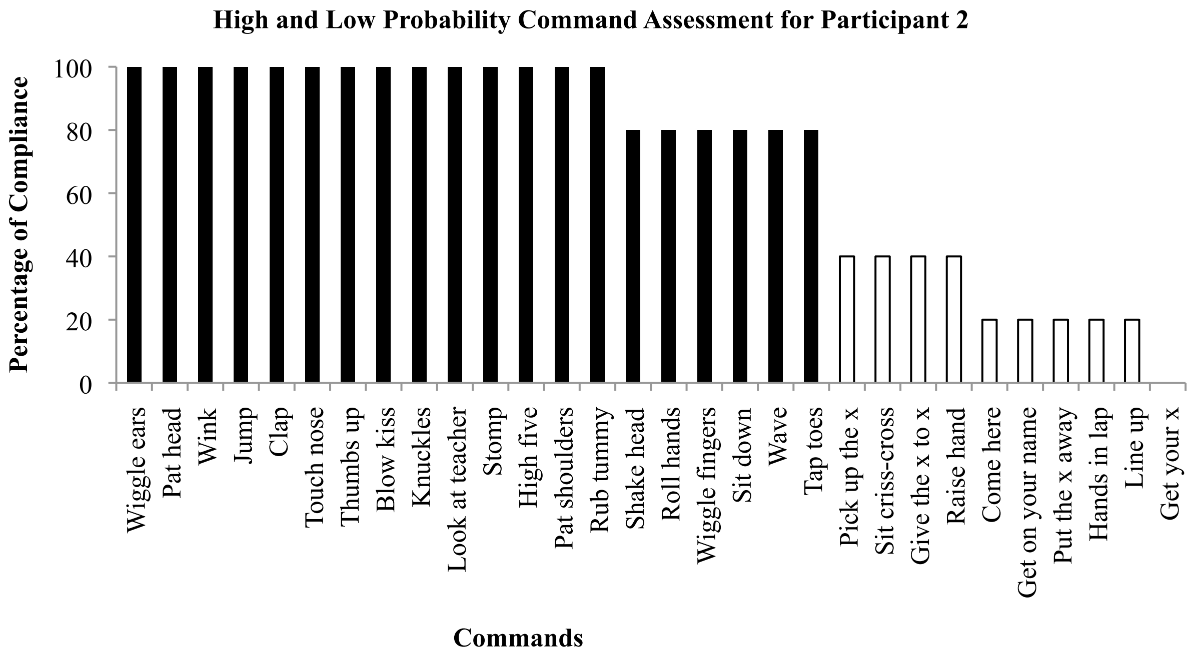

Figure 2. **High and Low Probability Command Assessment for Participant 2**

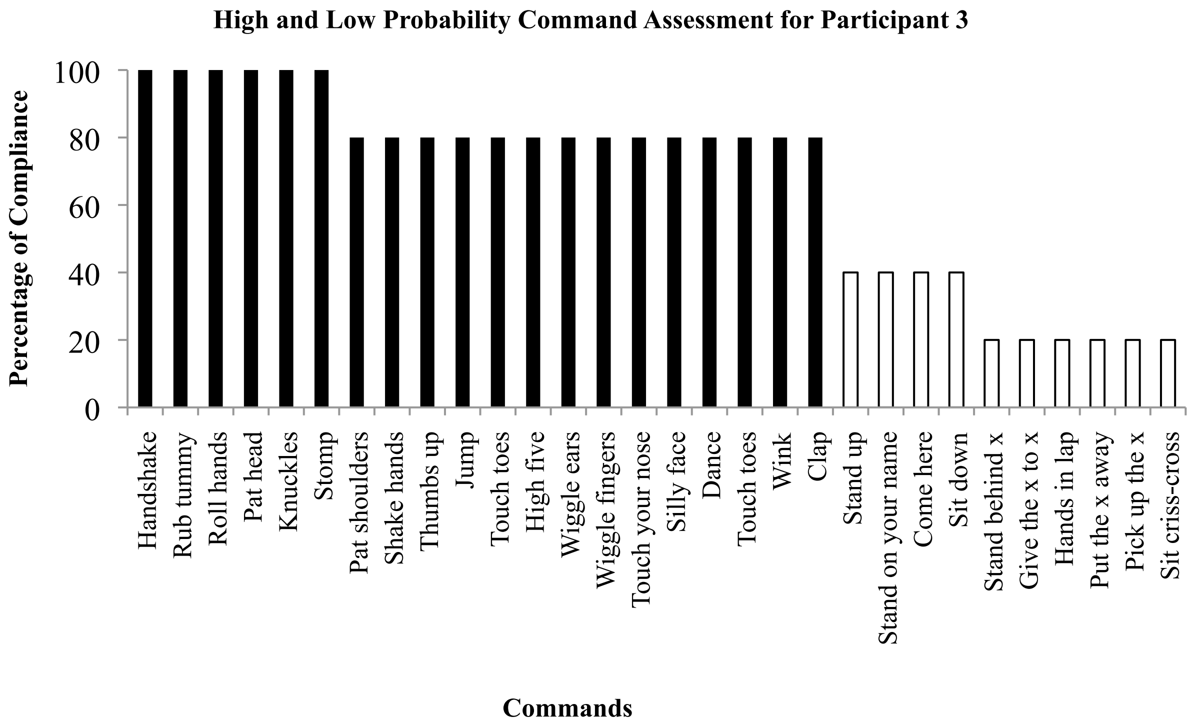

Figure 3. **High and Low Probability Command Assessment for Participant 3**

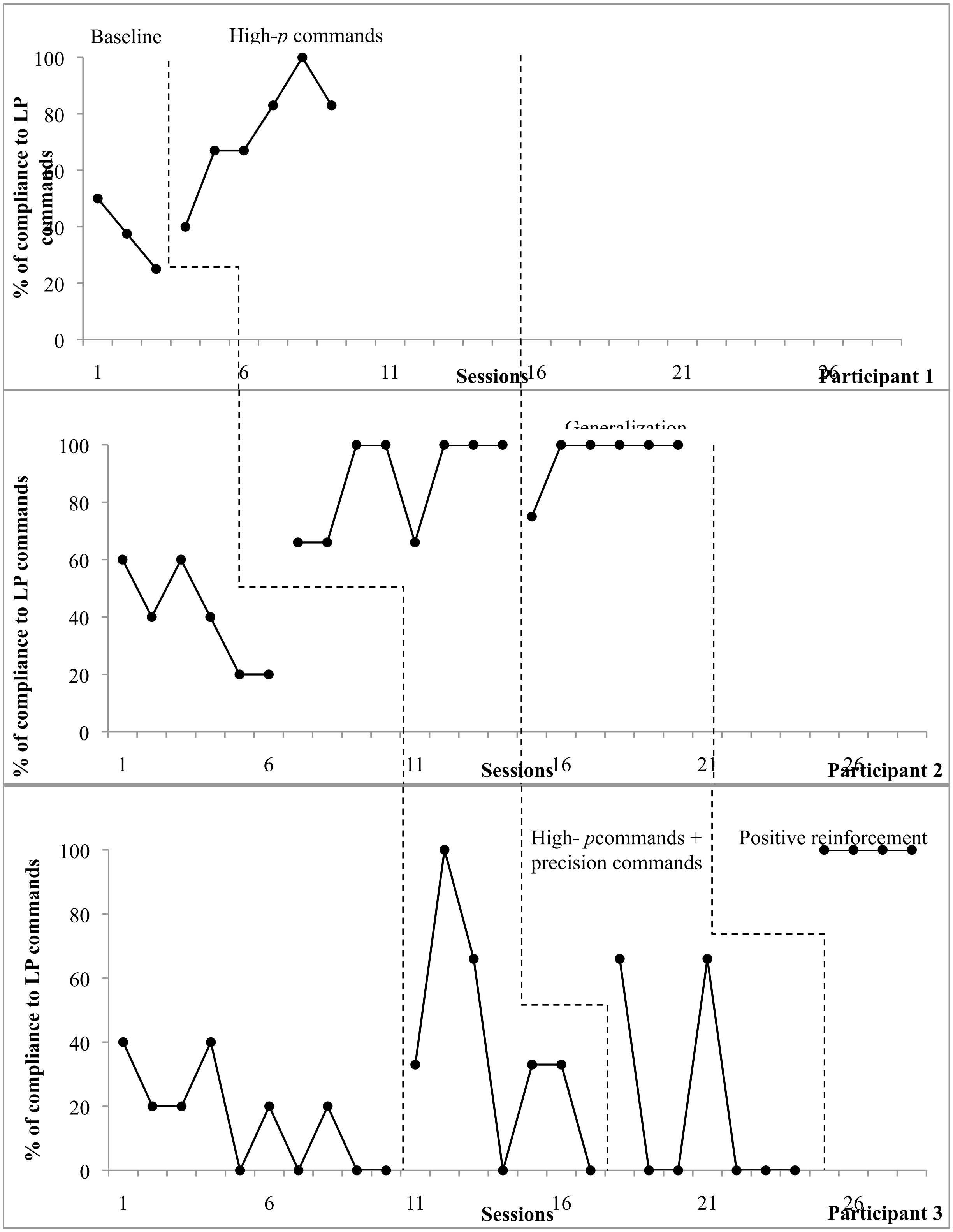

Figure 4. **Percentage of compliance to low-*p* commands in baseline, during high probability command sequence, high-*p* command sequence + precision commands, positive reinforcement, and generalization for Participants 1, 2, and 3**

30 s low-p command	40 s	50 s	60 s	70 s	80 s	90 s end of trial

30 s fixed time schedule for delivery of trial during baseline.

0 s first HP command	10 s second HP command	20 s third HP command	30 s LP command	40 s	50 s	60 s	70 s	80 s	90 s end of trial

90 s fixed time schedule for delivery of trial during high probability command procedure condition.

0 s first HP command	10 s second HP command	20 s third HP command	30 s LP command	40 s first precision command issued if no initiation to task	50 second precision command issued if no initiation to task	60 s physical guidance provided to complete task.	70 s	80 s	90 s end of trial

90 s fixed time schedule for delivery of trial during high probability procedure + precision commands.

0 s first HP command	10 s second HP command	20 s third HP command	30 s LP command	40 s first precision command issued if no initiation to LP (if necessary)	50 s second precision command issued if no initiation to LP (if necessary)	60 s physical guidance provided to complete task (if necessary)	70 s access to reinforcer if participant complies to LP command	80 s	90 s end of trial

90 s fixed time schedule for delivery of trial during positive reinforcement for independent compliance condition.

***Figure 5*. Fixed time schedules for delivery of trials during conditions**