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ORIGINAL PAPER

Increasing Classroom Compliance: Using a High-Probability Command Sequence with Noncompliant Students

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Abstract Noncompliance is one of the most problematic behaviors within the school setting. One strategy to increase compliance of noncompliant students is a high-probability command sequence (HPCS; i.e., a set of simple commands in which an individual is likely to comply immediately prior to the delivery of a command that has a lower probability of compliance). Although research has shown this technique to be effective at increasing compliance across various settings and behaviors, most studies have been limited to participants with moderate to severe developmental disabilities. The current study targeted 2 noncompliant elementary-age students within the general education setting. Two teachers were taught to integrate HPCS into ongoing classroom reading instruction and independent seatwork. For both participants, higher percentages of compliance with low-probability commands were displayed during intervention and maintenance phases compared to baseline levels. Results suggest that using an antecedent intervention based on HPCS holds promise for school personnel working with noncompliant students within the general education setting.

Keywords Behavioral intervention · Noncompliant students · Special education · Single subject design study

Introduction

Following teacher instructions is a critical skill for students to be successful within the classroom environment (Austin and Agar 2005). Conversely, research has

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shown that noncompliance or the failure to complete an instruction within an assigned time period is one of the most problematic behaviors within the school setting (Belfiore et al. 2007) and may inhibit learning, limit opportunities to participate in classroom activities, disrupt relations with peers, and potentially lead to escalations in problem behavior (e.g., aggression, disruptive behavior; Banda et al. 2003). Noncompliance of even a small number of students within a general education classroom takes valuable teacher time and resources, subsequently resulting in a loss of both academic and social instructional opportunities (Austin and Agar 2005; Belfiore et al. 2007).

Many teachers are ill-equipped to handle noncompliant behaviors in the classroom (Austin and Agar 2005). Classroom teachers often select behavior intervention strategies that are potentially aversive (e.g., teacher disapproval, verbal reprimands, classroom exclusion) when required to manage student misbehavior (Ducharme and DiAdamo 2005; Olmi et al. 1997). Although these strategies may decrease noncompliant behaviors in the short term, they may not always lead to lasting change. Furthermore, potentially aversive techniques may fail to increase compliant behavior, unintentionally reinforce noncompliance, or lead to escalations in problem behavior (Belfiore et al. 2007). Teachers also frequently opt for other, potentially more effective consequent strategies including response cost, time-out, and incentive systems when targeting noncompliant behaviors for intervention (e.g., Handen et al. 1992; Little and Kelley 1989). Again, while potentially effective solutions to student misbehavior, consequent strategies are reactive and in cases of punishment-based procedures require the noncompliant behavior to occur before the intervention is implemented (Banda et al. 2003). With these interventions, the undesired behavior must first occur before a corrective procedure is implemented. As a result, little is done to rearrange the classroom environment with the goal of preventing or reducing the undesired behavior.

Antecedent interventions often work in concert with consequent strategies designed to increase classroom compliance. Antecedent approaches frequently involve the rearrangement of the environment to minimize opportunities for noncompliance (e.g., Banda et al. 2003; Kern et al. 1994; Mace et al. 1988). The environment is set up to increase the likelihood of compliant behavior, which can then be reinforced through the use of consequence-based strategies (Belfiore et al. 2007). Antecedent intervention strategies maintain several advantages over reactive strategies. Methods that prevent noncompliance may be more efficient, produce long-lasting results, and do not require the noncompliant behavior to occur before implementing the intervention (Lee 2005). As such, antecedent intervention strategies can rapidly and dramatically improve problem behavior by changing or removing variables in the classroom environment that cause the occurrence of the problem behavior (Kern and Clemens 2007).

One preventive, empirically-supported antecedent strategy to increase compliance is high-probability command sequences (HPCS). HPCS consist of a set of simple commands to which an individual is likely to comply immediately prior to the delivery of a command that has a lower probability (Low-*p*) of compliance. The HPCS establishes a "momentum" of compliance that may continue through the Low-*p* commands (Mace et al. 1988). The mechanism for change involves a series

of high-probability (High-*p*) commands leading to a high rate of responding that serves as an antecedent to the Low-*p* command (Belfiore et al. 2007). The procedure also often calls for brief praise administered by an adult (e.g., teacher, parent) between High-*p* commands, suggesting that increases in the rate of reinforcement might also influence compliance with Low-*p* commands (Lee 2005; Oliver and Skinner 2002). Research has shown interventions using HPCS to be effective at increasing compliance across participants (e.g., students with developmental disabilities, behavioral-emotional disorders, speech disorders, learning disabilities), settings (e.g., self-contained classrooms, regular schools, inclusive classrooms), and commands (miscellaneous general, social, communicative, transition, academic; Austin and Agar 2005; Banda et al. 2003; Davis and Reichle 1996; Oliver and Skinner 2002).

Although research has found the use of HPCS to be effective in applied settings, most studies have involved participants with moderate to severe developmental disabilities. Little research has been done on the effectiveness of HPCS with students in general education settings and students with less severe behavior and emotional disorders (Ardoin et al. 1999; Zuluaga and Normand 2008). More research is also needed on the maintenance of HPCS effects within the general education classroom (e.g., fading quantity of High-*p* trial reinforcement, intervals between High-*p* trials; Banda et al. 2003; Oliver and Skinner 2002). The primary purpose of this study was to investigate the application of an intervention based on behavioral momentum for two noncompliant elementary-age students in a general education classroom setting. Specifically, we attempted to replicate previous research examining the benefits of an intervention based on HPCS in increasing compliance in a general education setting (e.g., Ardoin et al. 1999). In addition, the study incorporated a fading strategy (i.e., moving from a 3:1 High-*p* to Low-*p* ratio to a 1:1 ratio), similar to that used in previous research (e.g., Ardoin et al. 1999; Belfiore et al. 2007), as a means of implementing a less intrusive and more naturally occurring procedure prior to removing the intervention altogether. The current study extended previous research on the use of HPCS by implementing the intervention with two students receiving special education services in an inclusive setting (i.e., general education classroom). The study also improved upon existing research by assessing the social acceptability of the HPCS procedures by both the classroom and special education teachers.

Method

Participants and Setting

Participants included two elementary-age students who engaged in high rates of noncompliant behavior in the classroom. The participants were fifth grade students identified by the Local Education Agency (i.e., the school district) as having a behavior disorder based on state special education standards. Each had been identified as requiring special education services, in part, because of their noncompliance, frequent escalations in problem behavior, and poor responses to

typical classroom discipline. Thomas was 10 years old at the time of the study and received special education services since third grade. His academic performance was reported to be below average based on teacher reports, statewide assessment, and ongoing progress monitoring using curriculum-based assessment instruments. Specifically, his reading (e.g., oral reading fluency, comprehension) and written language (e.g., spelling) skills were assessed to be at the second grade level. However, Thomas' general education teacher noted that all academic work was provided at an appropriate instructional level. Thomas was diagnosed with Attention Deficit Hyperactivity Disorder in second grade by a licensed psychologist and was currently prescribed 20 mg of Adderall XR to be taken once daily in the morning. Charles was 11 years old at the time of the study and also in special education since the third grade. His academic performance was reported to be in the average range based on teacher reports, statewide assessment, and ongoing progress monitoring data. While both participants received most of their instruction in the general education classroom, each spent approximately 20% of the day in a resource room. Programming in the resource room consisted of additional academic instruction and skill development (e.g., practice of academic skills learned in the general education classroom), behavior management (e.g., placement out of the general education classroom due to escalations in behavior), and social skills training. Individual Education Plan (IEP) goals for both students targeted increased compliance, decreased escalations of problem behavior resulting in removal from the general education classroom, enhanced social skills, and improved task completion (e.g., assignments, classroom chores). Both participants were Caucasian and spoke standard English.

The intervention took place in a general education classroom within a medium-sized urban elementary school during the months of January, February, and March. The intervention was conducted during a 90-min reading instruction and independent seatwork period in the morning. This period was selected at the general education teacher's request. She noted that Thomas and Charles exhibited the most behavioral difficulties during this time. There were 26 students in the classroom at the time of the study including the two participants. Staff consisted of one classroom teacher possessing certification in elementary education, one special education teacher possessing certification in special education, and one paraprofessional. The classroom teacher had 4 years of classroom experience and was enrolled in a Master's degree program in special education at the time of the study. The special education teacher had 10 years of special education classroom experience and a Master's degree in special education. The paraprofessional had 11 years of classroom experience and training in instructional delivery methods and classroom management techniques. The special education teacher's duties were to provide instructional assistance to students with educational disabilities including the two participants. The special education teacher also assisted in managing the behavior of the two participants. While a token economy was being implemented in the resource room for the two participants, there were no concurrent behavioral interventions in place in the general education classroom during the study. However, each participant's IEP called for contingencies

(e.g., removal from the general education setting) should behaviors escalate to physical or verbal aggression.

Measures

Percentage compliance with Low-*p* commands was the primary dependent variable for the analysis. Compliance with Low-*p* commands was defined as initiating a teacher command within 10-s of the command verbally given and completing the request within an appropriate amount of time as determined by the staff member making the request. Data were also collected on each participant's compliance with High-*p* commands. Compliance with High-*p* commands was defined similarly to that of Low-*p* commands. Noncompliance was defined as engaging in a behavior other than the behavior that was requested or arguing with the teacher. Percentage compliance was calculated by dividing the number of instances of compliance by the number of instances of compliance plus the number of instances of noncompliance and multiplying by 100%. Prior to formal data collection, the authors trained the paraprofessional in behavioral observation data collection methods. The training involved a 30-min formal presentation followed by opportunities to practice collecting behavioral observation data in another classroom. The paraprofessional obtained 97% agreement with the authors before the intervention began.

Treatment acceptability data were collected using a 7-item informal questionnaire developed by the first author and used in previous intervention studies (see Axelrod et al. 2009). The questionnaire asked the classroom and special education teachers to rate their satisfaction with the intervention, the ease of implementation, and outcomes associated with compliance, task completion (e.g., academic), overall behavior (e.g., cooperation, physical and verbal aggression), and academic performance. Questionnaire items were rated on a 5-point Likert scale with the following response options: *None* (1), *A Little* (2), *Somewhat* (3), *A Lot* (4), or *Very Much* (5). Following the collection of baseline data, each teacher completed the questionnaire weekly. The first author provided the teachers with the questionnaires when beginning the intervention phase and collected the completed questionnaire at the end of each week. Teachers were told that the purpose of the questionnaires was to gather more information about the intervention.

Procedures

Before the intervention began, data were collected to identify High-*p* and Low-*p* commands for each participant. The classroom teacher developed a list of 40 common classroom instructions (e.g., "please put your Transformer© toy away" when the class is working on independent seatwork) and then gave each participant each instruction during the reading and independent seatwork period randomly, 10 times, over a 10-day period. All but one instruction constituted an initiation command (i.e., "do" or "start" something). The one termination command (i.e., "stop" something) selected by the teacher was "stop talking." For this command, the teacher was directed to use an initiation command immediately following the termination command (e.g., "stop talking and start working on your assignment"

and "stop talking and sit down"). Participants were required to comply with both commands in order to be considered compliant with the instruction. Each participant was able to complete each instruction on the list independently.

Percentage compliance was calculated for each instruction. Using criteria set in previous HPCS studies (e.g., Belfiore et al. 2007; Mace et al. 1988), commands complied with 80% of the time or greater were to be categorized as a High-*p* command and commands complied with 40% of the time or less were to be categorized as a Low-*p* command. Commands complied between 40 and 80% of the time were not used in the study. The commands identified as High-*p* and Low-*p* for Charles and Thomas and percentage of compliance during the 10-day identification period are presented in Tables 1 and 2.

Baseline

Each participant received between four and six Low-*p* commands given by either the classroom or the special education teacher during the 90-min reading and

Table 1 Charles' percentage compliance with teacher commands during identification period

Command category	Command	Percentage compliance during identification period (%)
High-*p*	Pick up writing utensil (e.g., pencil, pen, color pencil)	90
	Put down writing utensil	90
	Give teacher high five	90
	Give teacher fist pound	90
	Slide chair closer to group	80
	Put hands on desk	80
	Put hands on lap	80
	Smile	80
	Stand up	80
	Put reading book in desk	80
	Put scrap paper in wastebasket	80
	Walk over to teacher's desk	80
Low-*p*	Sit down in chair	10
	Stop talking and continuing working on assignment	10
	Stop talking and walk to teacher's desk	10
	Begin working on assignment	20
	Stand still	30
	Sit still	30
	Put inappropriate materials (e.g., toy, drawing paper, color pencil box) in desk	30
	Bring inappropriate materials to teacher	40
	Read sentence or passage from text	40
	Walk back to desk after unauthorized leave	40

Table 2 Thomas' percentage compliance with teacher commands during identification period

Command category	Command	Percentage compliance during identification period (%)
High-*p*	Give teacher high five	100
	Give teacher fist pound	100
	Put hands on desk	90
	Pick up writing utensil (e.g., pencil, pen, color pencil)	90
	Put writing utensil in desk	80
	Put down writing utensil	80
	Put hands on lap	80
	Stand up	80
	Slide chair closer to desk	80
	Walk over to group	80
	Sit down with group	80
Low-*p*	Stop talking and continuing working on assignment	10
	Put inappropriate materials (e.g., toy, drawing paper, color pencil box) in desk	10
	Stop talking and raise your hand	20
	Walk back to desk after unauthorized leave	20
	Read sentence or passage from text	30
	Write name on paper	30
	Begin working on assignment	30
	Take writing utensil out of mouth	30
	Walk over to teacher's desk	40

independent seatwork period. Teachers were directed to choose Low-*p* commands that made sense given the context of the classroom at that moment so that the instructions did not appear out of place. The teacher stated the participant's name followed by the Low-*p* command (e.g., "Thomas, bring your Transformer© toy to me"). The teacher issuing the request immediately verbally praised compliance (e.g., "nice job," "way to go," "thank you very much"). Teachers ignored noncompliance and waited at least 1 min before issuing another Low-*p* command.

Intervention

In the intervention condition, participants received three High-*p* commands followed by one Low-*p* command per trial. During the 90-min reading and independent seatwork period, participants were issued a total of four to six trials (i.e., three High-*p* commands followed by one Low-*p* command). Again, teachers were directed to choose commands that were not out of place given the classroom's context. During the intervention, teachers were also instructed to not use the HPCS when the participants were misbehaving so as to not inadvertently reinforce noncompliant or inappropriate behavior. The time between the completion of one

High-*p* command and the delivery of the next High-*p* command or the completion of the third High-*p* command and the delivery of the Low-*p* command was approximately 5 s. The teachers immediately praised the participants following compliance. Similar to baseline, teachers ignored noncompliance and waited at least 1 min before beginning another HPCS.

Fading

The fading condition mirrored the intervention condition except that participants received one High-*p* command before receiving one Low-*p* command.

Maintenance

The maintenance phase was similar to the other baseline conditions. Each participant received between four and six Low-*p* commands given by either teacher. The Low-*p* commands were not preceded by High-*p* commands as in the intervention or fading conditions. The purpose of the maintenance phase was to determine whether the participants' percentage compliance with Low-*p* commands decreased as a result of the intervention being withdrawn.

Experimental Design

A multiple-baseline design across participants was used to evaluate the effects of the two conditions on the percentage of compliance for each student (Alberto and Troutman 1999). Embedded in the multiple-baseline design was a reversal (i.e., ABABACA) design for each participant. Following baseline, the teachers presented the 3:1 sequence (i.e., intervention condition) followed by a return to baseline, return to the 3:1 sequence, return to baseline, 1:1 sequence (i.e., fading condition), and final maintenance phase. Each session represented one school day.

Interobserver Agreement

Interobserver agreement (i.e., interval by interval agreements divided by agreements plus disagreements and multiplied by 100%) was calculated for 35% of all observation sessions. A graduate student trained in behavioral observation prior to the formal data collection served as the second observer. The average interobserver agreement value was 99% (range: 97–100%).

Treatment Integrity

Treatment integrity was assessed for 28% of the intervention and fading sessions. The same graduate student serving as the second observer recorded the occurrence or nonoccurrence of each of the intervention steps including the number of requests given by the teachers. Treatment integrity was 100% during the sessions checked.

Results

Figure 1 represents participants' percentage of compliance during baseline, intervention, fading, and maintenance conditions for both High-*p* and Low-*p* commands. Table 3 provides means and ranges for participants' percentage of compliance during baseline, intervention, fading, and maintenance phases. Each participant displayed a higher percentage of compliance with Low-*p* commands during intervention and maintenance phases when compared with baseline levels. In addition, improvements in each participant's percentage of compliance were sustained when the fading condition (i.e., 1:1 sequence) was substituted for the intervention condition (i.e., 3:1 sequence). For both participants, percentage compliance with Low-*p* commands was higher during the maintenance phase when compared to initial baseline levels. As expected, percentage compliance for

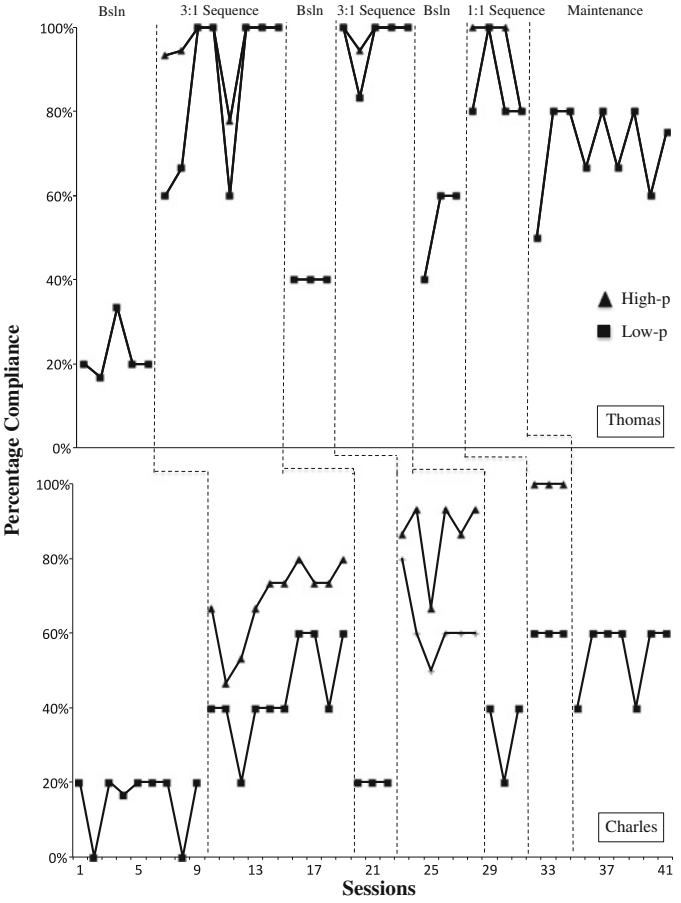

Fig. 1 Percentage compliance for both High-*p* and Low-*p* commands during baseline, intervention, fading, and maintenance conditions for Thomas and Charles

Table 3 Mean and range of percentage compliance with High-*p* and Low-*p* commands during baseline, intervention, fading, and maintenance conditions for Thomas and Charles

Condition	Thomas *M* (Range)	Charles *M* (Range)
Baseline	22% (17–33%)	15% (0–20%)
Low-*p*		
Intervention		
High-*p*	96% (78–100%	69% (47–80%)
Low-*p*	86% (60–100%)	44% (20–60%
Baseline	40%	20%
Low-*p*		
Intervention		
High-*p*	99% (94–100%)	87% (67–93%)
Low-*p*	97% (83–100%)	62% (50–80%)
Baseline	53% (40–60%)	33% (20–40%)
Low-*p*		
Fading		
High-*p*	95% (80–100%)	100%
Low-*p*	85% (80–100%)	60%
Maintenance	71% (50–80%	54% (40–60%)
Low-*p*		

High-*p* commands during the intervention and fading conditions was higher for both participants compared to the baseline levels.

Responses from the classroom and special education teachers in the treatment acceptability questionnaires indicated the intervention was generally easy to use and beneficial for both students. Mean scores, using the 5-point Likert scale that ranged from 1 (*None*) to 5 (*Very Much*), are provided. Both teachers found the intervention easy to implement ($M = 4.3$) and reported being satisfied with the overall outcome ($M = 4.3$). The teachers reported that believing the intervention improved compliance ($M = 4.3$), task completion (academic tasks $M = 4.2$; non-academic tasks $M = 4.1$), and overall behavior ($M = 3.9$). Finally, both teachers indicated a high likelihood of using the intervention with other students ($M = 4.6$).

Discussion

The primary purpose of the current study was to examine the application of an intervention based on behavioral momentum for two noncompliant students in a general education setting. Interventions that use behavioral momentum rely on the delivery of a sequence of High-*p* commands immediately prior to the delivery of a Low-*p* command (Oliver and Skinner 2002). Participants in this study displayed considerable improvements in compliance with teacher instructions during both the 3:1 (i.e., intervention condition) and 1:1 (i.e., fading condition) High-*p* to Low-

p command sequences when compared to baseline levels. The results add to the growing body of literature suggesting that interventions based on HPCS can be effective for problems involving noncompliant behavior. Perhaps most significant is this study's finding that the percentage of compliance for both participants was higher after the removal of the intervention (i.e., maintenance phase) when compared to baseline levels. Previous studies have found that percentage of compliance often returns to baseline levels when interventions using HPCS are withdrawn (Oliver and Skinner 2002). In this study, the fading procedures (i.e., reducing the number of High-*p* commands from three to one) might have helped with maintenance by providing participants continued access to reinforcement (i.e., teacher praise) for compliance with High-*p* commands before removing the intervention altogether. Fading is an important aspect of any intervention, as it is necessary to ensure positive effects are sustained over time. Both participants maintained improvements in percentage compliance when the number of High-*p* commands delivered prior to the Low-*p* commands was decreased from three to one and when the HPCS were withdrawn during the maintenance phase. These results are consistent with previous research suggesting that a simple fading procedure can maintain the positive effects of an intervention developed based on behavioral momentum even after the removal of the intervention (e.g., Ardoin et al. 1999; Belfiore et al. 2007).

Participants' increased compliance with Low-*p* commands is believed to be a result of the behavioral "momentum" that was established from the series of High-*p* commands given immediately before the Low-*p* command. Interventions based on behavioral momentum usually involve "administering quick series of request-response-reinforcement (RRR) trials that have a high probability of student compliance (High-*p* requests) just prior to a request having a low probability of compliance (i.e., low-probability requests)" (Oliver and Skinner 2002, p. 78). It is believed that the quick series of High-*p* commands serve as an antecedent that increases the probability of compliance with the Low-*p* command. The high rate of responding (i.e., complying with the High-*p* commands) is one explanation provided for why behavioral momentum might work in the context of increasing the probability of compliance with Low-*p* commands. Another explanation is that the procedures involve providing individuals with brief praise immediately following compliance with the High-*p* commands. The HPCS frequently leads to increased reinforcement associated with compliance as a response class, thereby influencing an individual's response to a Low-*p* command. Finally, exposure to multiple HPCS might establish a learning history whereby an individual's previous experience with High-*p* and Low-*p* commands and the subsequent reinforcement (i.e., praise) that follows serves to increase the probability of compliance with future High-*p* and Low-*p* commands.

The results are encouraging for several additional reasons. First, the study demonstrated that an intervention based on behavioral momentum could have a profound impact on the compliance of two students with behavior problems within the general education classroom. With more and more students with behavior disorders being educated in inclusive educational settings, it is important for applied research to investigate the impact interventions have on student performance in the

general education classroom. The majority of research investigating the effectiveness of High-*p* commands followed by a Low-*p* command to improve compliance has been conducted in non-inclusive settings (e.g., segregated classrooms/schools, group homes; Lee 2005). Furthermore, the current study was conducted with students with less severe behavior problems. Research on HPCS has typically involved individuals with more moderate to severe developmental disabilities (e.g., mental handicap, autism; Oliver and Skinner 2002). The results of this study are noteworthy in that behavioral momentum was applied in developing an effective intervention for two students exhibiting behavior problems in a general education classroom. Educators (e.g., teachers, school psychologists) need to arm themselves with effective interventions that work with a broad range of student characteristics in a variety of educational settings.

Second, the intervention procedure outlined in the current study is generally considered an antecedent strategy. Antecedent strategies focus on events immediately preceding problem behavior as compared to consequent strategies, which focus on events immediately following problem behavior. Antecedent strategies can be valuable to practitioners looking for preventive approaches to behavior problems. In the current study, the insertion of several High-*p* commands before a Low-*p* command allowed for increased opportunities for the teacher to praise participant compliance. Contingent teacher praise is considered a highly effective classroom behavior management strategy (Kerr and Nelson 2002). In addition, antecedent interventions can be implemented without the problem behavior needing to occur (Lee 2005). Reactive strategies within a classroom (e.g., loss of privileges, time-out) run the risk of leading to escalations in problem behavior particularly for those students with identified behavior disorders. The current study adds to the literature on antecedent-based interventions for problem behavior by demonstrating the effectiveness of an intervention based on behavioral momentum. Interventions based on behavioral momentum allow teachers to be proactive in their management of noncompliant behavior and perhaps prevent problem behavior from escalating.

Finally, the results of the present study provide insight regarding the social acceptability of interventions based on HPCS. Both the classroom and special education teacher found the intervention to be beneficial. Specifically, they believed that the intervention procedures helped improve compliance, increase task completion, and enhance overall behaviors. Teachers also noted the ease of implementation and indicated a high likelihood of using the intervention again. According to Elliot (1988), acceptability is the first concern in intervention selection, with acceptable interventions having a higher probability of use compared to interventions considered less acceptable. Therefore, these findings are important in that consultants in school settings (e.g., school psychologists, special educators) should recommend interventions that are socially acceptable, have a high degree of perceived effectiveness, and are easy to implement.

Despite the promising results, this study had several limitations. First, several of the Low-*p* commands involved both requests to engage in a desired behavior and stop engaging in a problematic behavior. For example, Charles had "stop talking and continue working on assignment" as one of his Low-*p* commands. While such a

command by a teacher is quite common in a general education classroom, mixed commands are different than a simple initiation command (e.g., "begin working on assignment") in that mixed commands require students to stop one behavior and initiate another. Related, the study failed to control for specific teacher commands across conditions. Changes in percentage compliance might have been due to the types of High-*p* and Low-*p* commands given by the teachers. For example, students might have been issued a greater number of Low-*p* commands they were more likely to follow or that required less effort. In addition, the study did not control for the frequency at which each teacher delivered High-*p* or Low-*p* commands across or within conditions. While the general education teacher was primarily responsible for issuing the commands, the special education teacher occasionally gave commands as well. Data were not collected to determine whether the participants responded more appropriately to a particular teacher. Furthermore, the study did not control for the delivery times of the High-*p* and Low-*p* commands across conditions. Because both teachers were instructed to give commands that made sense given the context of the classroom, it is not likely they issued commands randomly across the 90-min session. As a result, HPCS could have occurred close together. Future research on using HPCS with noncompliant students in inclusive general education settings should consider investigating the effects on different types of commands (e.g., initiation, termination, mixed), when the commands are issued (e.g., randomly distributed across sessions), the order of High-*p* commands, and classroom personnel (e.g., general education teacher, special education teacher, paraprofessional) might have on compliance.

Second, the study's findings are limited by the size of the sample. Although this study adds to the growing body of research supporting the effectiveness of HPCS, it is difficult to establish the effectiveness of an intervention for a specific population (e.g., students with behavior problems) with a small sample of participants. Furthermore, the study was conducted during a 90-min reading instruction and independent seatwork period. Therefore, it is unknown whether the increases in compliance with Low-*p* commands would generalize to other settings, task demands, or school personnel. Third, data were not collected on each participant's overall behavior, academic productivity, academic achievement, or on-task behavior. While teacher acceptability measures indicated that participants improved in these areas, such measures only assess teacher beliefs. Future research should consider including measures associated with academic or non-academic task completion. Fourth, data were not collected to see whether participants in the current study would have continued exhibiting higher rates of compliant behavior after the intervention was removed over a period of time. While follow-up data collected in the current study were promising, future research should consider investigating maintenance of compliance rate improvements beyond 1 or 2 weeks concluding the intervention.

Finally, although percentage of compliance with Low-*p* commands increased for both participants during the intervention condition and final maintenance phase compared to initial baseline levels, not all participants reached 80% compliance with Low-*p* commands. Criteria from previous HPCS studies (e.g., Belfiore et al. 2007; Mace et al. 1988), as well as criteria set for the current study, indicated that

commands complied with 80% of the time or greater should be categorized as High-*p* commands. Thomas' Low-*p* commands, identified prior to beginning the intervention, increased to above 80% during the intervention, and gains were sustained during the maintenance phase. However, Charles' response to the intervention was less pronounced. While Charles' compliance with Low-*p* commands increased over the course of the study, it never increased to 80%. In fact, Charles failed to comply with 40% of the Low-*p* commands during the HPCS in the intervention, fading, and maintenance phases. It might be that Charles required a higher ratio of High-*p* commands to Low-*p* commands (e.g., 6:1 sequence). Future research should include an evaluation of the optimal number of High-*p* commands prior to the Low-*p* command for individual participants especially when those participants fail to achieve a desired level of compliance with Low-*p* commands.

Despite these limitations, empirical evidence reported in this study suggests that using an intervention based on behavioral momentum holds promise for school personnel looking for evidence-based interventions to implement with students with behavior problems within the general education classroom. These findings are important for educators who could benefit from using an intervention that focuses on antecedent techniques, has a high degree of social acceptability, and has shown to be effective in increasing compliant behavior while utilizing a fading procedure over time.

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