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USING HIGH-PROBABILITY INSTRUCTION SEQUENCES WITH FADING TO INCREASE STUDENT COMPLIANCE DURING TRANSITIONS

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Making efficient transitions from one instructional activity to another has been shown to increase academic learning time and therefore student achievement. Because compliance with teacher instructions is a prerequisite for efficient transitions, we sought to determine if high-probability (high-*p*) instruction sequences issued by a classroom teacher would increase student compliance and decrease latency to comply during transitions. Three children in a regular second-grade classroom participated. Each day at the beginning of morning calendar time, the teacher issued five instructions to the class as a group while compliance data were recorded for the 3 target students. Following baseline, a multielement design was used to examine the effects of the high-*p* instruction sequence. We then systematically faded the number of instructions included in the high-*p* sequence as a means of transferring stimulus control to low-probability instructions. The procedure was effective for 2 of the 3 participants, and the results were maintained at 2- and 3-week follow-up. The implications of these findings for group applications of the high-*p* instruction sequence in regular education classrooms are discussed.

DESCRIPTORS: high-*p* instruction sequence, behavioral momentum, compliance, classroom transitions

Compliance with teacher instructions in classroom settings is critical for effective learning (Martens & Kelly, 1993). Research has shown that teachers can promote student compliance and academic performance by manipulating a variety of instructional presentation (e.g., rapid pace, feedback and reinforcement for correct responding) and planning variables (e.g., test-teach overlap, instructional match) (Christenson & Ysseldyke, 1989; Daly, Martens, Kilmer, & Massie, 1996; Zanolli, Daggett, & Pestine, 1995). High rates of compliance and engagement have been associated with increased academic learning time (Fisher et al., 1980) which sets an upper limit on students' opportunities to respond and therefore influences achievement (Christenson & Ysseldyke, 1989; Daly, Witt, Martens, & Dool, 1997; Wyne & Stuck, 1982).

One classroom activity in which compliance is particularly important is the amount of time it takes students to make a transition from one task to another (Gettinger, 1986). Excessive transition time is a common problem in the schools, with students spending over 70 min a day engaging in preparation and clean-up activities in some classrooms (Fisher et al., 1980). In an observational study of 122 typical and mildly handicapped students, Ysseldyke, Christenson, Thurlow, and Bakewell (1989) found that approximately 14% of time allocated for instruction in regular education classrooms was actually spent on gathering or putting away materials. For some students this value exceeded the amount of time spent reading from basals, working in workbooks, or listening to the teacher lecture.

Strategies that have been suggested in the literature for increasing compliance and decreasing transition time have included teaching students to execute transition routines efficiently at the beginning of the year (Gettinger, 1988), training students to respond

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to a standard signal (Anderson, Evertson, & Brophy, 1979), and providing students with overlapping assignments in sequence (Wyne & Stuck, 1982). Another strategy that seems promising for decreasing transition time is the high-probability (high-*p*) instruction sequence (Mace et al., 1988; Singer, Singer, & Horner, 1987). High-*p* instruction sequences involve the rapid presentation of three instructions with which an individual is likely to comply immediately preceding an instruction with a low probability of compliance. This procedure has been used successfully to increase compliance and decrease aberrant behavior in adults with developmental disabilities (e.g., Mace & Belfiore, 1990; Zarcone, Iwata, Mazaleski, & Smith, 1994) as well as children and youth with severe handicaps (e.g., Davis, Brady, Hamilton, McEvoy, & Williams, 1994; Ducharme & Worling, 1994; Horner, Day, Sprague, O'Brien, & Heathfield, 1991; Houlihan, Jacobson, & Brandon, 1994; Kennedy, Itkonen, & Lindquist, 1995; Singer et al., 1987).

Although numerous replications have supported the effectiveness of high-*p* instruction sequences for individuals with severe handicaps, only one study to date has evaluated the procedure with developmentally normal children (Rortvedt & Miltenberger, 1994). Using a multiple baseline across subjects design, these researchers compared high-*p* instruction sequences to brief time-out as means of increasing compliance with parental instructions in 2 4-year-old girls. Results suggested that the high-*p* instruction sequence was ineffective at increasing compliance for 1 girl, whereas sessions had to be terminated for the 2nd girl due to increased noncompliance with even the high-*p* instructions. Given their mixed results, Rortvedt and Miltenberger concluded that more research is needed concerning the feasibility of high-*p* instruction sequences with typical children.

The purpose of this study was to determine if high-*p* instruction sequences issued by a classroom teacher would increase student compliance during transitions. This study extends previous research involving high-*p* instruction sequences in several ways. First, as suggested by Rortvedt and Miltenberger (1994), we examined the use of high-*p* instructions with nondisabled children in a typical classroom setting. Second, the high-*p* intervention was delivered to the class as a group while its effects on 3 target children with a history of noncompliance were monitored. The study, therefore, marked the first group application of the high-*p* instruction sequence. Third, to examine more closely the effects of the intervention on temporal parameters of compliance (Shriver & Allen, 1997), we measured both percentage of compliance with instructions and latency to comply. Fourth, similar to Ducharme and Worling (1994), we incorporated a fading procedure designed to transfer stimulus control from the high-*p* sequence to low-*p* instructions. In this case, however, we examined whether simply reducing the number of instructions included in the high-*p* sequence would be effective without increasing the interval between the final high-*p* and low-*p* instructions. Finally, we collected follow-up data to assess the maintenance of treatment effects, and we assessed the teacher's ratings of treatment acceptability.

METHOD

Participants and Setting

Three children (1 male and 2 female) attending a second-grade regular education classroom participated. When the study began, Amy was 7 years 9 months, Jack was 7 years 5 months, and Jan was 8 years 0 months. The children were nominated by their classroom teacher as students who generally did not comply with teacher instructions.

The teacher was asked to identify a daily activity in her classroom during which students showed a low probability of compliance with the instructions issued (i.e., low-*p* instructions). The activity chosen was the transition to morning calendar time, and it involved the following five instructions directed to the entire class: (a) getting in quiet position (seated with hands folded on desk), (b) clearing desks, (c) taking out pencils, (d) taking out calendars, and (e) returning to quiet position. For 4 months prior to the study, the teacher had been giving these instructions to the class daily as one multiple-step instruction. The teacher was asked for the purposes of the study to give single-step instructions and to wait 20 s between each one. During all conditions, the teacher issued the five instructions in the same order as above. All sessions were conducted in a regular education classroom of 20 students and one teacher.

Behavioral Measures and Recording Procedures

Dependent measures included the percentage of low-*p* instructions with which each student complied and the mean session latency to comply. For both measures, compliance was defined as completion of the action requested within 20 s and involved the children sitting flat in their chairs with their hands clasped together on top of the desk for "get in quiet position," moving any object off their desks for "clear your desk," and holding the object requested in their hands for "take out your pencil" and "take out your calendar." Percentage compliance was calculated by dividing the number of low-*p* instructions complied with by the total number of low-*p* instructions issued in a session and multiplying by 100%. Latency to comply was calculated by summing the number of seconds from the end of each low-*p* instruction to completion of the requested action. This sum was then divided by the number of low-*p* instructions issued in a session to yield the mean session latency.

One graduate and one undergraduate student were trained to use a digital stopwatch and a data sheet for recording latency to comply. After the teacher issued each instruction, the observer immediately started her stopwatch. When the child was observed to complete the action requested as described above, the observer circled the corresponding time (in seconds) on the recording sheet. If a child did not comply with an instruction, noncompliance was recorded along with the maximum latency of 20 s. On occasion, a child's desk was clear prior to the "clear your desk" instruction or a pencil was on the desk prior to the "take out your pencil" instruction. On these occasions, the instruction was not used in determining percentage compliance or mean latency to comply. When the teacher failed to give an instruction, only the four remaining instructions given were used in the calculations. If a child had less than four opportunities to comply, the session was discarded.

Instructions with a high probability of compliance (high-*p* instructions) were established prior to the intervention phase and were defined as instructions with which all participants complied on five occasions. The teacher and experimenter first created a list of instructions with which they believed the children would comply. Prior to beginning the study, the teacher issued each one on the list every 15 s during five separate sessions. Instructions that were not complied with 100% of the time were discarded. After the five trials, only 12 instructions remained and these were established as high-*p* instructions. Examples of the high-*p* instructions were "touch your head," "shake your fingers," "clap your hands," and "shake your head."

Experimental Design and Procedure

Following baseline, a multielement design was used to compare the efficacy of high-*p* sequences with low-*p* only probes during each intervention phase. Phase changes for the group-administered intervention were based on the results for Amy and Jack as well as the number of high-*p* sessions conducted. In general, we attempted to change conditions following high-*p* sessions in which Amy and Jack showed high levels of compliance. These decisions were tempered, however, by the aim not to conduct a large number of high-*p* sessions because of Jack's variable compliance to high-*p* instructions. Follow-up data were collected 2 and 3 weeks after the completion of the study. During follow-up data collection, baseline procedures were used to assess the efficacy of the intervention.

Baseline. Each morning the teacher was given a sheet listing the five low-*p* instructions to be issued. In order to insure that 20 s were allowed for compliance, the teacher waited for a cue from the observer before giving the next instruction. The teacher did not praise the children for compliance.

HiP-3 condition. During the intervention phase, the teacher was given a similar sheet each morning with three high-*p* instructions listed preceding each low-*p* one. The high-*p* instructions preceding each low-*p* one and the order of the high-*p* instructions were selected randomly without replacement from the pool of 12. The teacher was instructed to not allow more than 5 s between each high-*p* instruction or between the last high-*p* and the low-*p* instruction.

Immediately below each low-*p* instruction was an instruction to the teacher to praise one or more target children whose names appeared on the sheet. Names were selected so that all target children had the opportunity to be praised twice each session. The teacher was also instructed to praise nontarget children contingent on compliance.

Fading conditions. Once high levels of compliance to low-*p* instructions were obtained for Amy and Jack during the HiP-3 condition, fading procedures began. During the first fading condition (HiP-2), two high-*p* instructions preceded each low-*p* one. In the second fading condition, the number of high-*p* instructions was reduced to one (HiP-1). Sheets given to the teacher remained generally the same during fading conditions, first listing the high-*p* instruction preceding each low-*p* one, which was followed by the randomly chosen students to be praised for compliance.

*Low-*p *probes*. Probes in which high-*p* instructions were not issued occurred at least once during all conditions. These sessions were used to evaluate the effects of the high-*p* sequence and to determine the extent to which stimulus control had transferred, as evidenced by an increase in compliance to low-*p* probes. The teacher was given a sheet instructing her to praise randomly chosen target children after each low-*p* instruction in a fashion identical to the high-*p* sessions.

Follow-up. Follow-up data were collected 2 weeks and 3 weeks after the last fading condition. During these three low-*p* only probe sessions, the teacher was given sheets containing only the five low-*p* instructions, which she issued in a manner identical to baseline.

Interobserver Agreement, Treatment Integrity, and Treatment Acceptability

During 40% of the sessions, an independent observer recorded compliance and latency to comply. Percentage of agreement for compliance was calculated by dividing the number of agreements on compliance by the number of opportunities to comply and multiplying by 100%. With respect to the latency measure, observers were considered to be in agreement if the time recorded was within ± 1 s of the other observer. Percentage of agreement for latency was calculated by dividing the number of agreements by the total number of agreements plus disagreements and multiplying by 100%.

At the completion of each session, observers recorded whether the teacher gave all instructions and the order in which they were given. Teacher praise as instructed was monitored during 44% of the sessions. The number of occasions that the teacher appropriately gave or did not give verbal praise to a participant was divided by the number of times she was instructed to do so and multiplied by 100%.

Following the last fading session, the teacher was asked to complete the Intervention Rating Profile-15 (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985) as a measure of treatment acceptability. The teacher responded to items on the IRP-15 by indicating her level of agreement on a 6-point Likert scale with 1 = *strongly disagree* and 6 = *strongly agree* (sample item: "I liked the procedures used in this intervention").

RESULTS

The integrity with which the teacher issued the high-*p* instruction sequence was 100%. The integrity with which she reinforced compliance when directed was 100% for Amy, 83% for Jack, and 56% for Jan. Interobserver agreement was 100% for percentage compliance to both low-*p* and high-*p* instructions and averaged 88% (range, 80% to 100%) for latency to comply. Interobserver agreement for the integrity with which the teacher gave instructions and reinforced compliance was 100%.

Figure 1 shows the percentage of low-*p* instructions with which Amy complied in each session and her mean latency to comply during each session across all phases. Amy averaged 65% compliance during baseline, with a mean condition latency of 10.6 s. The HiP-3 intervention increased Amy's mean compliance to 96% and decreased her mean condition latency to 3.6 s. Alternating probe sessions suggested the HiP-3 treatment was responsible for increasing compliance, in that the mean compliance during low-*p* only probes was 58% with a mean condition latency of 11.9 s. During the first series of HiP-2 and HiP-1 fading conditions, Amy complied with 100% of the low-*p* instructions, with mean session latencies of 3.3 s and 4.3 s, respectively. Amy's compliance during low-*p* only probe sessions increased to 80% under both of these fading conditions, whereas her mean session latency to comply decreased to 9.6 s (HiP-2) and 4.8 s (HiP-1).

During the HiP-2 reversal, Amy's mean compliance with low-*p* instructions following the high-*p* sequence was 87%. Her compliance in the probe session that occurred at the end of this phase was 100%. Amy's mean condition latency to comply when high-*p* instructions preceded low-*p* ones was 4.5 s, whereas her mean session latency was 7 s when low-*p* instructions were presented alone. During the final stage of fading, she complied with 100% of instructions during both HiP-1 sessions (mean condition latency = 5.3 s) and the one low-*p* only probe (mean session latency = 4.6 s). At 2 and 3 weeks follow-up, Amy's compliance remained at 100% and her mean condition latency was 5.6 s. Observers recorded Amy's compliance to high-*p* instructions during 46% of the sessions, and she complied with 100% of the high-*p* instructions sampled. These data suggest that the high-*p* intervention was effective at increasing Amy's compliance to low-*p* instructions.

Figure 2 illustrates the percentage of low-*p* instructions that Jack complied with each session across all phases and his mean latency to comply. Jack complied with 33% of low-*p* instructions during baseline sessions (range, 0% to 80%) with a mean condition latency of 15.3 s. When the HiP-3 intervention was implemented, Jack's compliance in-

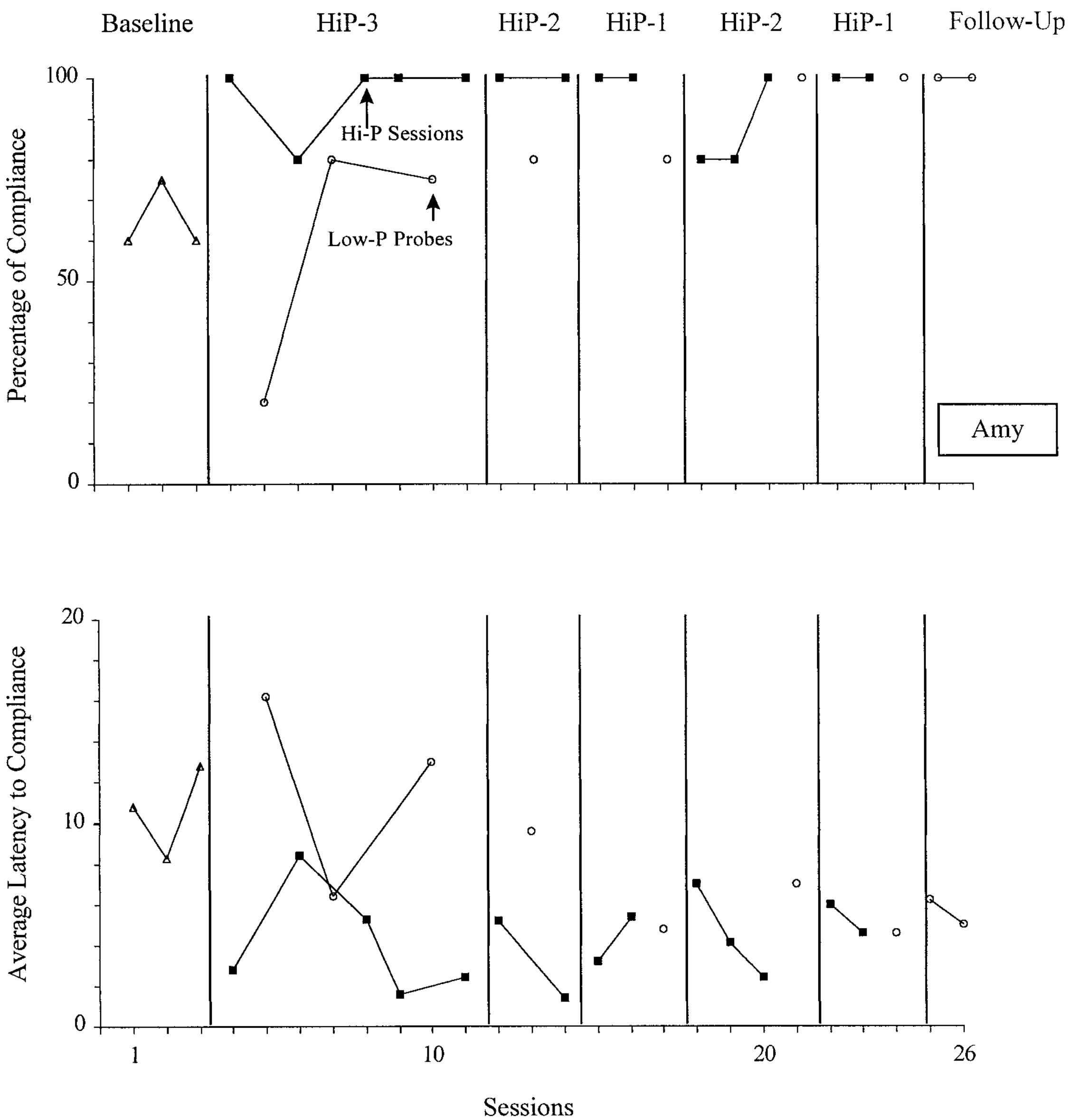

Figure 1. Percentage of low-*p* instructions complied with (top panel) and average latency to comply (bottom panel) per session across baseline, intervention (HiP-3), fading (HiP-2 and HiP-1), and follow-up conditions for Amy.

creased to 75% (range, 0% to 100%) of low-*p* instructions following the high-*p* intervention (mean condition latency = 7.8 s). Jack failed to comply with both high-*p* and low-*p* instructions during the third high-*p* session, which decreased his mean compliance and increased his mean condition latency. During low-*p* only probe sessions, Jack's mean compliance was 40% (mean condition latency = 14.5 s). The improvement in Jack's mean latency and percentage compliance to low-*p* instructions during HiP-3 sessions compared to baseline and probe sessions suggested that the HiP-3 intervention was effective.

Throughout the HiP-2 condition, Jack

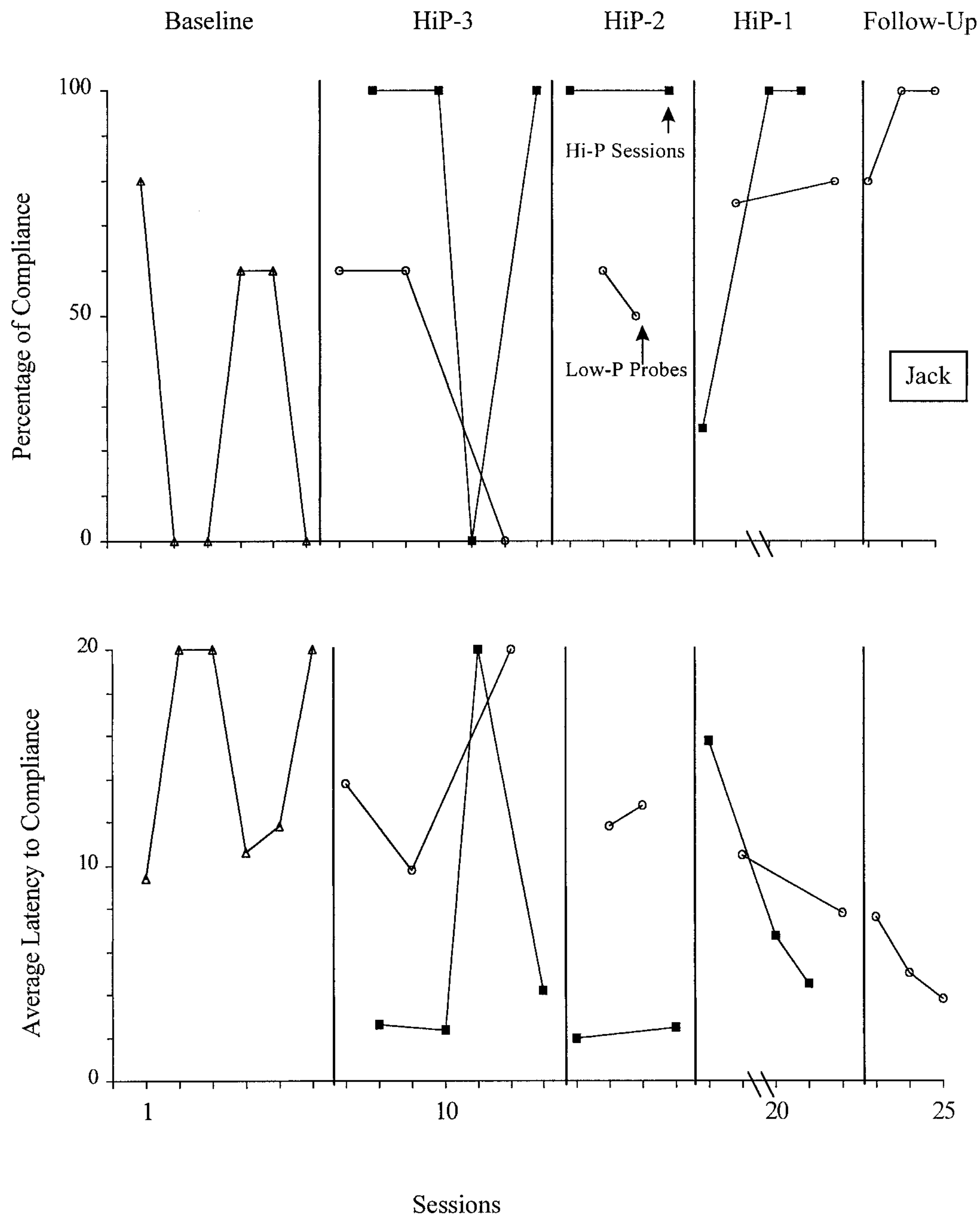

Figure 2. Percentage of low-*p* instructions complied with (top panel) and average latency to comply (bottom panel) per session across baseline, intervention (HiP-3), fading (HiP-2 and HiP-1), and follow-up conditions for Jack.

complied with 100% of the low-*p* instructions during high-*p* sessions (mean condition latency = 2.3 s) and he complied with 55% of low-*p* instructions during the low-*p* only probes (mean condition latency = 12.3 s). The continued high rates of compliance during this HiP-2 condition suggested that the intervention remained effective when faded.

Although percentage compliance with low-*p* instructions increased slightly and mean session latency decreased in low-*p* only probes, the results did not suggest a transfer of stimulus control to low-*p* instructions.

During the first HiP-1 session, Jack failed to comply with all high-*p* instructions and complied with only one low-*p* one (compliance = 25%, mean session latency = 15.8 s). After the following low-*p* only probe session (compliance = 75%, mean session latency = 10.5 s), Jack became ill and was not present for the HiP-2 reversal. On the day of Jack's return, the HiP-1 condition was reintroduced. He complied with 100% of the low-*p* instructions during the HiP-1 sessions (mean condition latency = 5.6 s) and 80% of the instructions during the low-*p* only probe (mean session latency = 7.8 s). At follow-up, Jack's compliance remained high, with a mean compliance across sessions of 93% (mean condition latency = 5.5 s). Observers recorded Jack's compliance to high-*p* instructions during 30% of the sessions, and he complied with 67% of those sampled. These data suggested that the intervention was also effective for Jack.

As Figure 3 shows, Jan's mean compliance during baseline was 53% (range, 40% to 60%) and her mean condition latency was 10.4 s. Jan did not comply with any high-*p* or low-*p* instructions during the first HiP-3 session, but compliance increased sharply thereafter (mean compliance = 42%, mean condition latency = 14.0 s). During the final HiP-3 session, Jan complied with 80% of the low-*p* instructions with a mean session latency of 10.8 s. Her percentage compliance during the low-*p* probe was also low during this condition (25%) with a mean session latency of 15.3 s. Although Jan's low-*p* compliance did not reach 100%, fading began based on the other participants' data. Jan complied with 100% of the low-*p* instructions during the first HiP-2 session but with only 60% during the second session (mean compliance = 80%, mean condition latency = 6.6 s). Her percentage compliance during the low-*p* only probes also dropped sharply during this condition with a mean of 40% (mean condition latency = 16.2 s).

During the HiP-1 condition, Jan's mean compliance decreased to 65% (range, 50% to 80%), but remained above baseline (mean condition latency = 8.2 s). The percentage of instructions with which she complied in the low-*p* only probe increased to 75%, with a mean session latency of 10.0 s. During the HiP-2 reversal, there was considerable variation in Jan's compliance across high-*p* sessions (mean compliance = 47%, range, 0% to 80%; mean condition latency = 11.9 s). Her compliance during the low-*p* only probe session that occurred at the end of this phase was 100% (mean session latency = 3.8 s). During the final HiP-1 condition, Jan complied with 100% of the low-*p* instructions in the first high-*p* session (mean session latency = 6.3 s), and this dropped to 60% compliance during the second session (mean session latency = 10.2 s). During the low-*p* only probe, she complied with 50% of the low-*p* commands (mean session latency = 12.5 s). Observers recorded Jan's high-*p* compliance during 43% of the sessions, and she complied with only 43% of the high-*p* instructions sampled. At follow-up, Jan's mean compliance of 52% (mean condition latency = 14.3 s) was near that of baseline, suggesting that the intervention was not as effective for Jan.

The teacher completed the IRP-15 by circling ratings of 5 (*agree*) or 6 (*strongly agree*) in response to all 15 items, resulting in a mean rating of 5.7. Ratings of 5 were circled on the items "Most teachers would find this intervention appropriate for children's behavior problems," "Most teachers would find this intervention suitable for behavior problems," "This intervention was a good way to handle the children's behavior problems," and "This intervention proved effective in changing the children's problem behaviors."

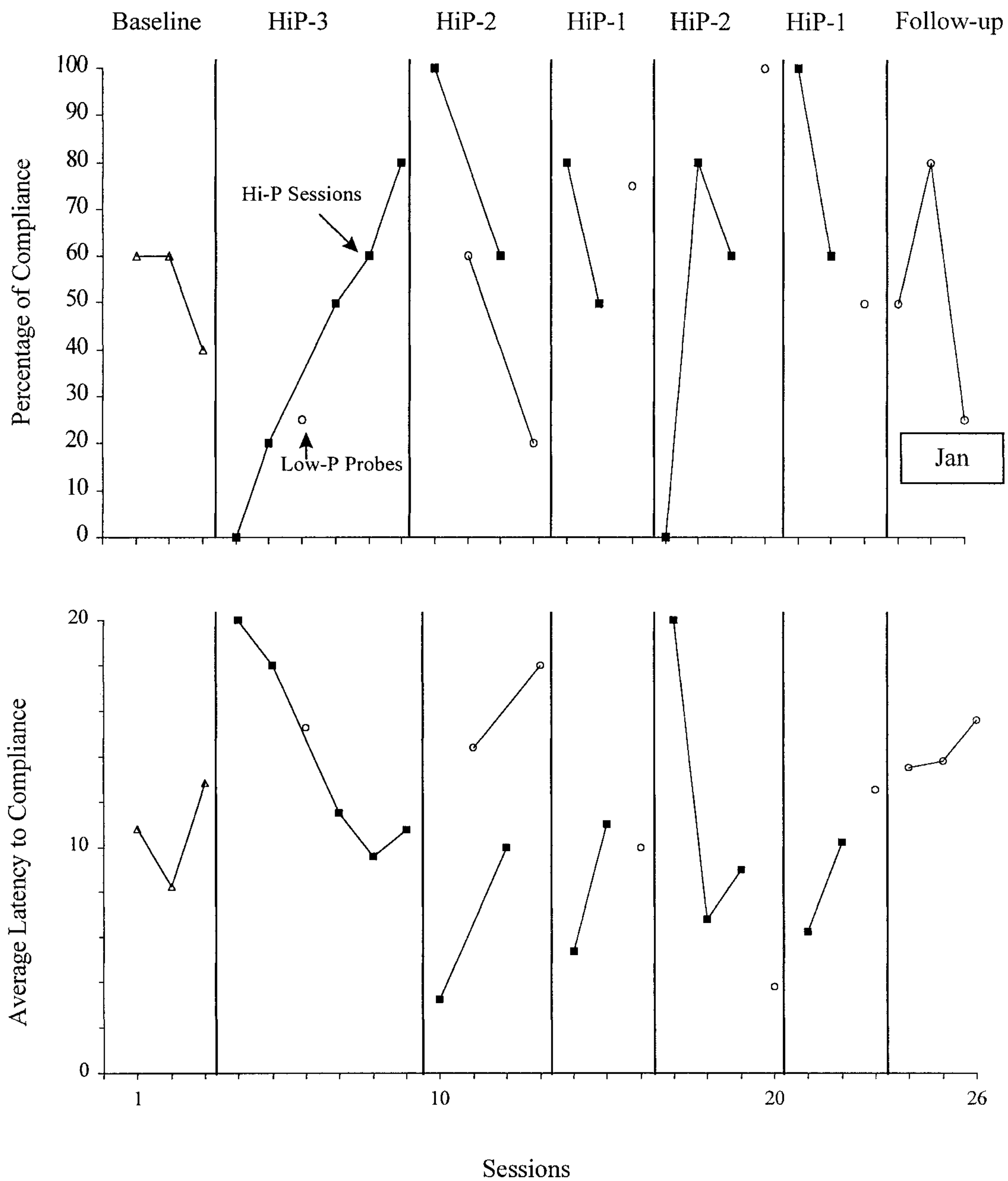

Figure 3. Percentage of low-*p* instructions complied with (top panel) and average latency to comply (bottom panel) per session across baseline, intervention (HiP-3), fading (HiP-2 and HiP-1), and follow-up conditions for Jan.

DISCUSSION

The purpose of the study was to determine whether high-*p* instruction sequences issued by a classroom teacher to a group of nondisabled students would be an effective means of increasing student compliance. The study also examined whether the intervention could be faded and thereby potentially transfer stimulus control to low-*p* instructions by reducing the number of instructions in the high-*p* sequence. Results suggested that the intervention was effective for Amy and Jack, but the data were inconclusive for Jan. In addition, treatment effects were maintained at follow-up for 2 of the 3 participants.

Although the data suggest that the intervention and fading procedures were effective for 2 students, Jack's results were inconsistent. There are several explanations for why Jack's compliance was low during some high-*p* sessions and why the intervention did not produce lasting improvements in Jan's compliance. First, similar to Ducharme and Worling (1994), participants occasionally failed to comply with high-*p* instructions, were distracted, or were engaged in other activities (e.g., eating breakfast). Across the high-*p* sessions sampled, Jack's mean high-*p* compliance was 67%, whereas Jan's was only 43%. On such occasions, it was not possible to delay the session or issue additional high-*p* instructions because the intervention was administered to the group. Jan's low level of high-*p* compliance likely weakened the intervention overall, and her sharp decreasing trends in most conditions suggested that its effectiveness may have further decreased with repeated use (i.e., Jan may have lost interest in or stopped attending to the high-*p* instructions). Second, because the intervention was administered to the group, it was not possible to individualize phase changes. A clear limitation of the study was our inability to increase the number of HiP-3 sessions for Jan given the increasing trend that was observed during this condition. Third, the teacher reported that she began using the procedures throughout the day, which may have decreased the effectiveness of the intervention during experimental sessions. This may have occurred for two reasons: (a) The teacher may not have implemented the intervention with integrity when the recorders were absent (e.g., by not reinforcing compliance), and (b) frequent use of the high-*p* instructions may have caused the children to lose interest in them. If implementation of the high-*p* intervention across the school day weakens its effects, it may be useful in future research to explore alternative means of transferring stimulus control or extending the effects of the high-*p* procedure with typical children. A final explanation for the inconclusive findings for Jan may have been the low integrity with which the teacher praised her for compliance when scheduled (56%). Failing to reinforce Jan's compliance likely reduced the effectiveness of the high-*p* intervention.

Numerous implications can be drawn from this study. First, the high-*p* sequence appears to be an effective group-administered school-based intervention for increasing compliance in some students. Second, this study illustrates the efficacy of this procedure in helping teachers establish stimulus control over instructions to initiate classroom routines. In this study, the high-*p* sequence increased compliance for 2 of 3 students, thereby providing the teacher with opportunities to reinforce this behavior. Third, it may be the case that once high-*p* instructions establish stimulus control over compliance, fading procedures can be used to transfer stimulus control to low-*p* instructions (Ducharme & Worling, 1994). The present findings suggest that this might be accomplished by simply decreasing the number of instructions issued in the high-*p* sequence without increasing the interval between the final high-*p* and low-*p* instructions. Fourth, the study provides support for the conclusions drawn by Singer et al. (1987) that the high-*p* sequence (a) may be most appropriate when students are making transitions from high- to low-preference tasks and (b) has the potential to prevent negative teacher–student interactions as teachers attempt to obtain compliance and children intensify their attempts to escape. In this study, the high-*p* sequence increased the likelihood that children would comply with low-

p instructions to make a transition to an academic activity. Finally, the high-*p* sequence is not only effective but is highly acceptable to teachers, as evidenced by both the teacher's ratings on the IRP-15 and her reported use of the intervention at other times during the day.

One limitation of the study was the 20-s ceiling placed on the measure of latency. This ceiling likely decreased the discrepancy between those occasions when students did and did not comply, thereby reducing observed treatment effects on this variable. Children also were not allowed more than 20 s to comply before noncompliance was recorded. Participants may have complied with instructions after 20 s and thus their average compliance was artificially deflated. However, it is unlikely that the children would have complied after 20 s, given the recent findings by Shriver and Allen (1997) that 98% of participants initiated compliance within 14 s of an instruction and the average initiation latency was 6 s.

A second limitation of this study is that only 12 different high-*p* instructions were used, and this may have contributed to children losing interest in them. Future studies should use a broader array of high-*p* instructions and frequently rotate their use. It would also be beneficial to conduct occasional probes to determine whether the high-*p* instructions can maintain their high probability of attaining compliance when issued separately.

A third limitation of the study was that positive reinforcement and antecedent instruction effects on compliance during low-*p* only probes were not tested in isolation. Whereas increases in compliance that were observed during high-*p* versus low-*p* sessions could be attributed to the high-*p* sequence, gradual increases in compliance during the low-*p* only probes could have resulted from reinforcement, transfer of stimulus control, or some combination. A possible avenue for future research would be to conduct a component analysis in order to tease out the sources of these effects. Despite these limitations, the present results suggest that the high-*p* instruction sequence holds promise as a means of increasing group compliance in regular education classrooms. In addition to examining other methods of fading the intervention, it might be beneficial in future research to explore the use of high-*p* sequences in other instructional contexts.

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STUDY QUESTIONS

1. What is the high-*p* instruction sequence, and to what situations has it been typically applied?

2. How does the current study differ from previous investigations involving the high-*p* sequence?

3. What features of the transitional activity examined in this study may have facilitated the effectiveness of the high-*p* sequence?

4. What were the dependent variables, and why were two measures used?

5. Provide examples of the high-*p* instructions. How were these instructions identified?

6. Describe the procedures in effect during (a) baseline, (b) the HiP-3 condition, and (c) the low-*p* probes. Which condition (baseline or the low-*p* probes) provided the necessary control for the effects of the high-*p* sequence?

7. Briefly summarize the results obtained for each student.

8. What factors may have accounted for Jan's results?

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