REPLICATION OF A HIGH-PROBABILITY REQUEST SEQUENCE WITH
VARIED INTERPROMPT TIMES IN A PRESCHOOL SETTINGDaniel Houlihan, Lori Jacobson, and Paul K. Brandon
Mankato State University

An intervention for noncompliance consisting of a series of requests promoting a high probability of compliance followed either 5 s or 20 s later by a request with a low probability of compliance was implemented with a preschool child with autism. Results indicated that applications of the request sequence with a shorter interprompt time resulted in higher rates of compliance, and longer interprompt times resulted in near-baseline rates of compliance.

DESCRIPTORS: behavioral momentum, high-probability requests, low-probability requests

Nevin, Mandell, and Atak (1983) suggested that learned behavior possesses momentum. In other words, "behavior maintained at steady states by interval or ratio schedules of reinforcement . . . persist[s] over time following change in reinforcement conditions" (Mace et al., 1988, p. 124). Mace et al. (1988) sought to apply Nevin's metaphor to develop an intervention for noncompliant behavior. By applying a sequence of high-probability (high-*p*) requests (i.e., requests likely to be complied with), the rate of reinforcement may be manipulated to increase the "momentum" of compliant behavior that may persist when the subject is asked to perform a task with a low probability (low *p*) of compliance.

The current study replicates the third experiment from Mace et al. (1988) with a noncompliant preschool-aged boy diagnosed with autism. If successful, this approach would provide teachers with a simple, nonintrusive method of gaining compliance in a classroom setting. The goals of the study were (a) to increase the rate of compliance using a sequence of high-*p* requests prior to presenting low-*p* requests, and (b) to compare effects of 5-s and 20-s interprompt times (IPT), with the 5-s IPT anticipated as being more effective.

METHOD: Participant and setting. The participant was a 5-year 4-month-old boy with autism. He was considered to be high functioning because he did not show any signs of self-stimulatory behavior, had some appropriate spoken language, and occasionally responded appropriately to simple verbal requests. He was assessed by the school psychologist and judged to be noncompliant on the basis of the compliance test (Roberts & Powers, 1988). His initial cognitive assessment showed a Stanford-Binet verbal reasoning score of 66, visual reasoning score of 62, and short-term memory score of 54.

The experiment was conducted in a special-needs preschool classroom serving eight children with behavioral disorders. Two 10- to 15-min experimental sessions were conducted during work time and structured play time on the days the experimenter (the participant's personal aide) was present. Work-time experimental sessions occurred at one of four work tables or on the carpeted area. During this period, a box containing fine-motor activities (e.g., puzzles and small toys) and a book were used to focus the child's activity. Play time occurred in a room (14 m by 16 m) containing a number of items used in gross and fine motor training (e.g., scooters). The subject was prompted to choose an activity, and requests were issued during the course of that activity.

Procedure. Effects of the high-*p* sequence and comparison of the 5-s and 20-s IPT were evaluated using an alternating treatments design. Baseline observations were recorded after the experimenters spent 6 days in the classroom with the participant in order to establish high- and low-probability request lists and to reduce reactivity. During the second phase, two treatments, differing only in the IPT between the high-*p* request sequence and the issuance of the low-*p* request, were randomly alternated between settings. During the final phase, only the most successful treatment was used in both settings.

Baseline data were collected during 10-min sessions in both the work and play settings. A prerecorded tape with an earphone signaled the experimenter to randomly issue either a high- or low-*p* request at 1-min intervals. Requests were chosen within the context of the situation from a list of requests taken from the compliance test (Roberts & Powers, 1988) and other published research. The response was recorded as compliant if it occurred within 15 s of request delivery. The experimenters chose 10 high-*p* requests to which the participant complied 100% of the time. The 17 low-*p* requests were those with which the participant complied less than 50% of the time. No consequences were arranged for compliant or noncompliant responses, including negative reinforcement (cf. Zarcone, Iwata, Hughes, & Vollmer, 1993), during baseline.

High-probability requests. The high-*p* request sequence was implemented during two 10- to 15-min sessions (work time and play time) daily. The sessions were separated by free play and snack time (approximately 45 min). During the treatment phases, a sequence of three high-*p* requests was issued either 5 s or 20 s prior to a low-*p* request (e.g., "Look at me," "Give me five," and "Touch your nose," followed 5 s or 20 s later by "Take the book out of the box"). All high-*p* requests were simple one-step tasks that could be complied to within 5 s. Request sets were issued at 1-min intervals measured from the completion of the delivery of the low-*p* request to the delivery of the first high-*p* request. Compliance to requests was followed by social reinforcement (e.g., a smile, head nod, "good job," "okay") and (for compliance with low-*p* requests) the occasional addition of tactile reinforcers (e.g., a hand shake, tickling, back scratching). Efforts were made to keep the level of reinforcement consistent with responses typically made by the subject's classroom teachers.

One of two audiotapes (5-s IPT or 20-s IPT) was randomly chosen each day to be used during work time or play time. When the 5-s IPT tape was used during work time, the 20-s IPT tape was used during play time, and vice versa. During the final phase, the 5-s IPT tape was used in both settings.

Interobserver agreement. Agreement data were collected for 30% of all sessions across all conditions. Percentage of agreement for compliance was calculated by dividing the number of agreements on compliance and noncompliance with low-*p* requests by the total number of low-*p* requests made for the session and multiplying by 100%. Agreement percentages during baseline, intervention, and preferred treatment phases averaged 98%, 93%, and 100%, respectively. Both the experimenter and second observer noted that compliance occurred 100% of the time for the high-*p* requests.

RESULTS AND DISCUSSION: Results of the study are shown in the figure. Compliance levels increased during the high-*p* request sequence when a 5-s IPT was in effect, but showed no improvement over baseline when the 20-s IPT was used during work time and modest improvement during play time. Compliance was not specifically reinforced during baseline, whereas compliance was readily reinforced socially during the high-*p* sequences. The failure of the 20-s IPT to increase compliance to the extent seen with the 5-s IPT suggests that this potential confounding effect was probably not the critical variable in this study. The average baseline level of compliance was 55% during work time and 41% during play time. Application of the intervention during work time resulted in average compliance of 69% with an IPT of 5 s and 41% with a 20-s IPT. Play-time compliance averaged 89% with a 5-s IPT and 69% with a 20-s IPT. The final phase of treatment arranged a 5-s IPT in both settings and produced compliance levels averaging 89% and 100% during work time and play time, respectively.

This study found that the use of a high-*p* request sequence prior to the issuance of a low-*p* request resulted in increased compliance to low-*p* requests for a preschool child with autism. Further, the length of time between the high-*p* sequence and the low-*p* request was apparently an important factor in the success of the intervention with this child. Intervention effects were consistently greater when the high-*p* sequence included a 5-s IPT rather than a 20-s IPT. This finding replicates a single-case experiment by Mace et al. (1988) to increase compliance in an adult with mental retardation. One explanation for this effect is that the shorter IPT increases the rate of reinforcement for compliance, and compliance tends to persist when challenged by the low-*p* request.

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