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PREFERENCE FOR UNRELIABLE REINFORCEMENT IN CHILDREN WITH MENTAL RETARDATION: THE ROLE OF CONDITIONED REINFORCEMENT

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We examined the effects of conditioned reinforcement on children's choice between reliable (100%) and unreliable (50%) reinforcement under various stimulus conditions in a concurrent-chains procedure. The study was conducted across three experiments. Experiments 1 and 2 were conducted under conditions similar to basic laboratory work and consisted of participants selecting from one of two black boxes (placed on a table) that were correlated with different reinforcement schedules. In Experiment 3, we assessed a participant's preference for unreliable reinforcement during conditions in which the target responses were aggression and mands. Results of the three experiments showed that the participants preferred unreliable reinforcement under certain conditions. Findings are discussed regarding the role of specific stimuli (i.e., items correlated with a reinforcement schedule, adult reactions) as conditioned reinforcers and how they may influence children's preference for a response (e.g., aggression, self-injury) that produces reinforcement on a leaner schedule than a socially desirable response (e.g., mands).

DESCRIPTORS: conditioned reinforcement, unreliable reinforcement, choice, delay to reinforcement

A problem frequently faced by clinicians occurs when individuals with developmental disabilities show a preference for problem behavior that produces a leaner schedule of reinforcement (i.e., unreliable reinforcement) than does a trained, socially desirable response, such as mands (i.e., reliable reinforcement). Previous applied research has shown that variables such as reinforcement schedules, response effort, immediacy of reinforcement, and quality of reinforcement (Neef, Mace, & Shade, 1993) may contribute to response allocation.

Basic laboratory research with pigeons may also provide an explanation regarding preference for unreliable reinforcement. Several studies (Dunn & Spetch, 1990; Kendall, 1974, 1985; Spetch, Belke, Barnet, Dunn, & Pierce, 1990) have shown that under certain stimulus conditions, pigeons select a response alternative that produces unreliable reinforcement (e.g., $p = .5$) rather than one that produces reliable reinforcement (e.g., $p = 1$). These conditions typically consist of arrangements in which different reinforcement schedules are correlated with distinct stimuli. The authors attributed these effects to conditioned reinforcement. However,

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these variables have not been well studied in applied research (Iwata & Michael, 1994).

The basic research cited above has relevance for applied work on conditioned reinforcement because it may help to identify variables that could produce preference for unreliable reinforcement in humans. Specifically, why do individuals engage in problem behavior in a choice situation when a concurrently available alternative response produces more reliable reinforcement? Therefore, the general goals of the present studies were (a) to replicate basic research findings on preference for unreliable reinforcement with pigeons, applying similar procedures to children with mental retardation using arbitrary behaviors, and (b) to assess the generality of these findings to clinically relevant behaviors. We completed three experiments. Experiments 1 and 2 were conducted under laboratory-like conditions in which participants were seated at a table and requested to select between one of two black boxes, each correlated with a different reinforcement schedule (i.e., reliable or unreliable reinforcement). The objective of these experiments was to assess if certain experimental arrangements would result in a participant's preference for a response that produced unreliable reinforcement. In Experiment 3, we first assessed a participant's aggression via functional analysis (Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994). We then provided the reinforcer responsible for behavioral maintenance (i.e., edible items) on reliable and unreliable schedules during a choice situation in which the target responses were aggression and mands.

EXPERIMENT 1

The objective of this experiment was to replicate basic research findings with pigeons (Dunn & Spetch, 1990; Kendall, 1974, 1985; Spetch et al., 1990) showing that pigeons preferred a response that produced unreliable (i.e., 50%) rather than reliable (i.e., 100%) reinforcement under certain experimental conditions. Therefore, participants' behavior (choosing between one of two black index-card boxes) was assessed during analog conditions while they were seated at a table using the concurrent-chains percentage-reinforcement procedure described below.

Participants and Setting

Dave and Kerry were 3-year-old boys with mild developmental delays. Both boys used two- and three-word utterances to communicate and typically followed one- to two-step instructions. All sessions were conducted in a room (4.5 m by 6.0 m) with two chairs and a table in which only the participant and experimenter were present.

Materials

Two black plastic boxes (10 mm deep, 14 mm wide, 8 mm long) were used as the choice options for the participants. To initiate each trial, the two boxes were placed on a table 10 mm apart. Three different-colored plastic blocks (red, green, yellow) were used to signal the various reinforcement schedules in effect for each option. The blocks were 2.5 mm high, 6 mm wide, and 3 mm long. Reinforcement was one piece of dry cereal presented in a small bowl. Edible items were identified as preferred in preference assessments conducted periodically throughout the study using the methodology described by Roane, Vollmer, Ringdahl, and Marcus (1998).

Procedure

General concurrent-chains percentage-reinforcement procedure. The therapist placed both black boxes on a table (i.e., initial-link stimuli) and said, "Pick a box." A response to either box (concurrent fixed-ratio [FR] 1 schedules) resulted in the onset of the terminal-link schedule and the presentation of

a colored block (i.e., terminal-link stimulus). The therapist removed the other box. Each choice of a black box ended with an outcome of either food or no food (10 s) according to a fixed-time (FT) schedule. A choice of one black box always resulted in a food outcome (100% reinforcement), and choice of the other box always resulted in food on half of the outcomes and no food on the remaining outcomes (50% reinforcement). The FT values used in the terminal links were either 10 s or 30 s, all FTs (on both sides and food vs. no food) being the same within a given session. The position of the black boxes was alternated randomly on a daily basis to control for a position bias. The therapist did not initiate interaction with the participant during a session but answered questions directed to her by the participant.

Signaled percentage reinforcement. In this condition, each black box was correlated with a unique colored block (i.e., terminal-link stimulus). For example, choosing the right black box always produced a red block and reliable reinforcement (i.e., 100% reinforcement). Choosing the left black box sometimes produced a green block that signaled a food outcome and sometimes a yellow block that signaled no food (i.e., 50% reinforcement).

Unsignaled percentage reinforcement. Procedures in the unsignaled condition were similar to the signaled procedures described above with one exception: The colored blocks used in the unreliable option were not correlated with a specific outcome (food or no food). For example, choosing the left black box produced either a green or yellow block, each of which produced food on 50% of the choices.

Dependent Variable and Data Collection

The target behavior was a participant's choice of a black box (defined as the participant touching a box within 10 s of the experimenter's prompt) during the choice phase. Preference for unreliable reinforcement was measured by calculating the total number of responses to the black box (i.e., initial-link stimulus) on the unreliable option and dividing them by the sum of responses made to both black boxes. One or two independent observers seated behind a one-way mirror collected data. Interobserver agreement was recorded during 33% of the sessions equally distributed across participants and phases. Interobserver agreement was calculated on a trial-by-trial basis in which exact agreement coefficients were obtained by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Agreement scores were 100%.

Experimental Designs

The effects of using distinct stimuli (i.e., colored blocks as terminal-link stimuli) to signal different reinforcement outcomes with various terminal-link schedules were evaluated using modified reversal designs. For Dave, we used an ABCBCD design; for Kerry, we used a BCDCB design. A represents unsignaled FT 10 s, B represents signaled FT 10 s, C represents signaled FT 30 s, and D represents unsignaled FT 30 s. Unsignaled and signaled conditions were initially alternated across participants to address potential sequence effects.

Results and Discussion

Results for Dave and Kerry are presented in Figure 1. The last six sessions for Dave in the unsignaled FT 10-s condition show a preference for reliable reinforcement (overall mean for unreliable reinforcement choice = 57%, mean for the last six sessions = 23%). Responding in the signaled FT 10-s condition also shows a preference for the reliable reinforcement choice (mean for unreliable reinforcement choice = 21%). These results show that simply using distinct stimuli to

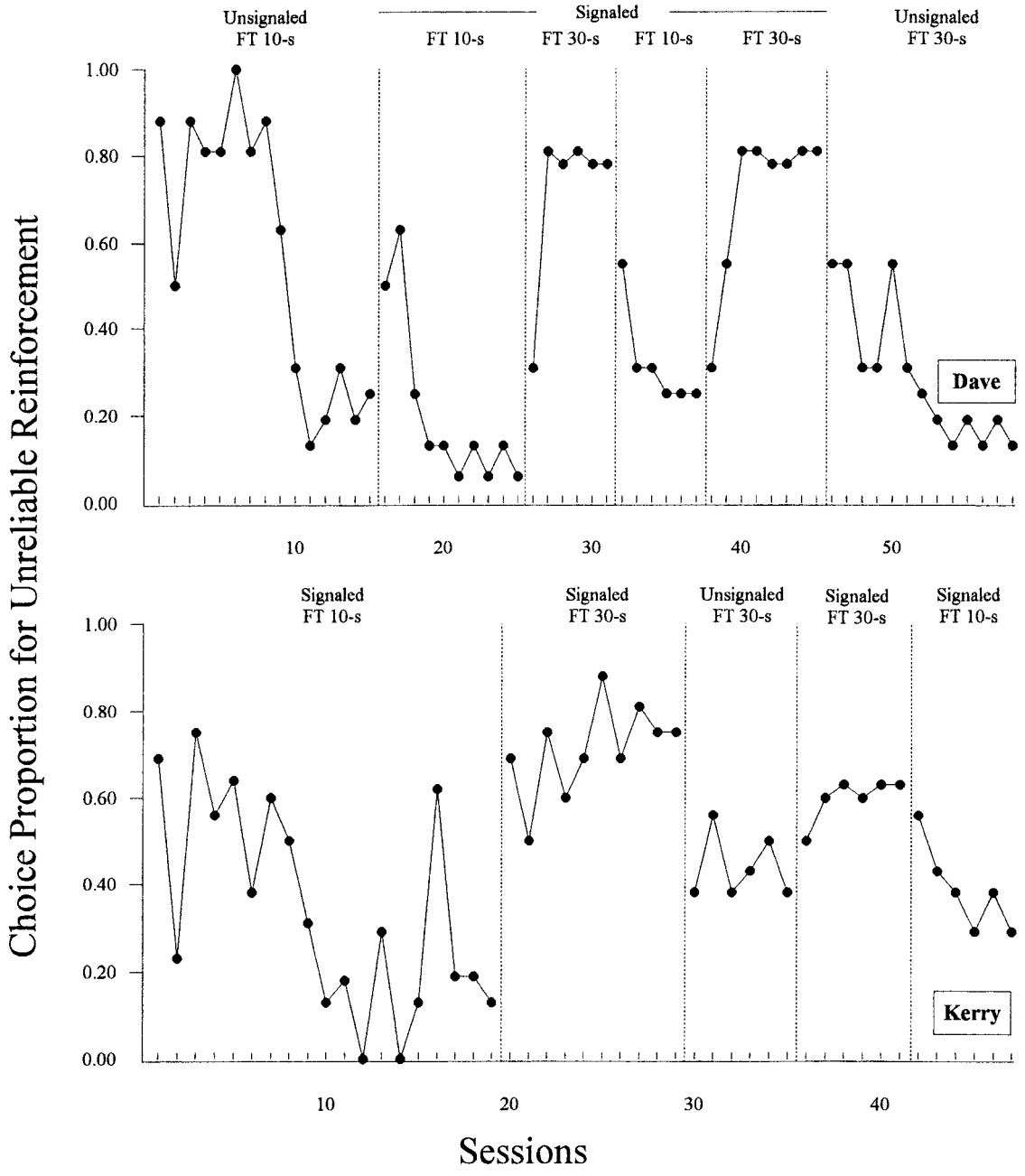

Figure 1. Mean choice proportion for unreliable reinforcement for Dave and Kerry during Experiment 1.

signal an outcome did not produce a preference for unreliable reinforcement during signaled conditions with an FT 10-s terminal-link schedule. Preference for unreliable reinforcement increased (M = 71%) during the first signaled FT 30-s condition and decreased when we returned to a signaled FT 10-s condition (M = 32%), thus showing the effect of the terminal-link duration on Dave's preference for unreliable reinforcement. Dave's preference for unreliable reinforcement was high in the next signaled FT

30-s condition (M = 71%) and low in the unsignaled FT 30-s condition (M = 29%). These data show the effect of longer FT schedules (30 s) on Dave's preference for unreliable reinforcement when distinct terminal-link stimuli signaled outcomes.

For Kerry, low rates of responding were observed for the unreliable choice (M = 25%) during the signaled FT 10-s condition. Preference for the unreliable reinforcement choice increased during the first signaled FT 30-s condition (M = 73%), thus showing the effect of a longer terminal-link FT schedule on his preference for unreliable reinforcement. Kerry's preference for unreliable reinforcement decreased during the subsequent unsignaled FT 30-s condition (M = 43%). His preference for the unreliable choice increased when we returned to a signaled FT 30-s condition (M = 61%). In the final phase (signaled FT 10 s), Kerry's preference for unreliable reinforcement decreased to an average of 39%. These data show that Kerry's preference for unreliable reinforcement was greatest when distinct stimuli were used to signal terminal-link outcomes and with longer terminal-link schedules (FT 30 s).

Results from Experiment 1 replicate the finding of previous studies (Dunn & Spetch, 1990; Kendall, 1974, 1985; Spetch et al., 1990) showing that preference for unreliable reinforcement may be observed under a concurrent-chains procedure with signaled terminal-link stimuli when terminal-link schedules are long. In the present study, participants' preference for unreliable reinforcement was observed only when distinct stimuli (i.e., colored blocks) signaled the outcomes and when the FT schedules were 30 s. Dunn and Spetch have suggested that responding in these procedures may be influenced by conditioned reinforcement and delayed primary reinforcement. That is, the colored blocks may have functioned as conditioned reinforcers, especially when outcomes were delayed (i.e., FT 30 s).

EXPERIMENT 2

The results of Experiment 1 suggested that conditioned reinforcement influenced participants' preference for unreliable reinforcement. Belke and Spetch (1994) stated that if preference for unreliable reinforcement is influenced by the terminal-link stimulus functioning as a conditioned reinforcer, then delaying the onset of the terminal-link stimulus should adversely affect its conditioned reinforcement effect. Therefore, the objective of Experiment 2 was to assess the effects of a 10-s delay between an initial selection of one of the two black boxes (i.e., initial-link or choice phase) and the presentation of a colored block (i.e., the terminal-link stimulus) on a participant's preference for unreliable reinforcement.

Participant and Setting

Marti was a 4.5-year-old girl who had been diagnosed with mild developmental delays. She used two- and three-word utterances to communicate and typically followed one- to two-step instructions. All sessions were conducted in a room (4.5 m by 6.0 m) in which only the participant and experimenter were present.

Procedure and Experimental Design

The procedure for this experiment was the same as that used during the signaled percentage-reinforcement condition (with an FT 30-s schedule) of Experiment 1 except that the presentation of a colored block (i.e., terminal-link stimulus) was delayed 10 s following a choice of one of the two black boxes (Belke & Spetch, 1994). We assessed the effects of a 10-s delay using an ABAB design, with A representing the immediate presentation of the colored block and B representing the 10-s delay condition.

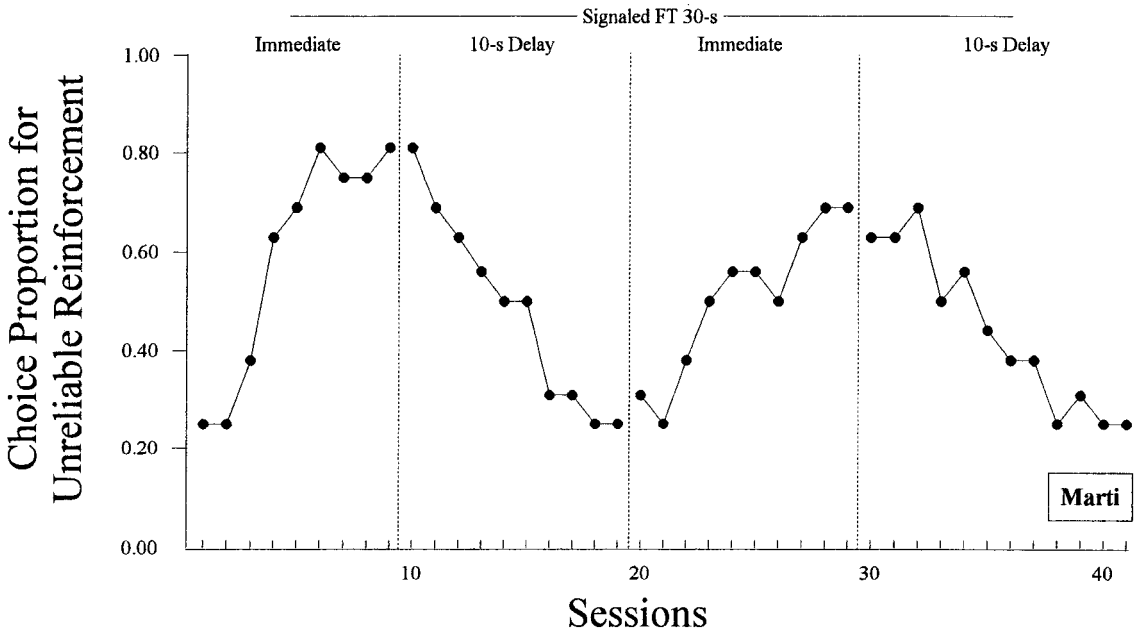

Figure 2. Mean choice proportion for unreliable reinforcement for Marti during Experiment 2.

Results and Discussion

Results for Marti are presented in Figure 2. Choice for the unreliable reinforcement alternative averaged 59% during the initial signaled FT 30-s condition without a delay. Preference for the unreliable reinforcement alternative steadily decreased (M = 48%) with the introduction of a 10-s delay for the onset of the terminal-link stimulus. These results were then replicated in the second set of signaled FT 30-s conditions with (M = 44%) and without (M = 51%) the 10-s delay. Interobserver agreement was calculated using the same method described in Experiment 1 and was obtained during 36% of the sessions equally distributed across phases. Interobserver agreement averaged 100%.

The findings of Experiment 2 replicate those of Belke and Spetch (1994) showing that delaying the presentation of the colored blocks (terminal-link stimuli) produced a shift in preference from unreliable to reliable reinforcement. Belke and Spetch suggested that delaying the onset of the terminal-link stimuli may have been functionally similar to an unsignaled condition in Experiment 1. That is, the removal of the black boxes (i.e., initial-link stimuli) without the immediate presentation of the colored blocks during the delay was not predictive of a specific outcome.

EXPERIMENT 3

The results of Experiments 1 and 2 replicated those of previous studies showing the effects of conditioned reinforcement on participants' preference for unreliable reinforcement. Experiments 1 and 2 were conducted under analogue conditions. Therefore, the objective of Experiment 3 was to assess the effects of signaled terminal-link stimuli (with FT 30-s terminal-link schedules) on a participant's preference for unreliable reinforcement similar to Experiment 1. The difference between this experiment and Experiment 1 was that the target behaviors were clinically relevant: mands (for preferred edible items) and aggression rather than touching one of two concurrently available black

boxes. Because previous research suggested a preference for the alternative that produced unreliable reinforcement, we paired aggression with reliable reinforcement and mands with unreliable reinforcement schedules.

Participant and Setting

Mary was 7 years old, with pervasive developmental delays, and had been admitted to a specialized hospital unit for treatment of aggression. She spoke using complete sentences. All sessions were conducted in a room (4.5 m by 6.0 m) in which Mary and two experimenters were present.

Experimental Design

Mary's aggression was initially assessed via functional analysis (Iwata et al., 1982/1994). A series of analogue conditions were presented during 15-min sessions in a randomized multielement design.

The effect of percentage reinforcement on Mary's choice between aggression and mands was assessed using a reversal design (ABAB), with A representing a condition in which aggression was on an FR 1 schedule of reinforcement ($p = 1$) and mands were on extinction, and B representing a condition in which aggression was on an FR 1 schedule of reinforcement and mands had a .5 probability of reinforcement.

Dependent Variables and Data Collection

Aggression was defined as forceful hitting, kicking, or scratching others. Mands consisted of Mary asking an experimenter for candy ("Can I have a piece of candy?"). Observers used a computerized event-recording procedure (Repp, Harman, Felce, VanAcker, & Karsh, 1989) to record the frequency of target behaviors. A second observer recorded data for the purpose of interobserver agreement on an average of 37% of the sessions equally distributed across conditions. The Reliable program (Repp et al., 1989) was used to calculate interobserver agreement. Occurrence agreement was scored when two observers recorded the onset of the target behavior within 5 s of each other. Occurrence agreement averaged 95% (range, 80% to 100%) for aggression and 88% (range, 70% to 100%) for mands.

Procedure

Functional analysis. A functional analysis was first conducted to confirm a positive reinforcement hypothesis regarding Mary's aggression as reported by her parents and as observed during descriptive observations. The functional analysis consisted of attention, edible items, escape, and control conditions, similar to those described in Iwata et al. (1982/1994). During the first three conditions, the therapist provided either attention, an edible item, or a break from the task contingent on each occurrence of aggression. In the control condition, the therapist provided access to requested toys, praise for appropriate toy play, and neutral comments on an FT 30-s schedule. The therapist did not respond to aggression during this condition.

Functional communication training (FCT) plus extinction (EXT). The functional analysis showed that Mary's aggression was maintained by access to positive tangible reinforcement (i.e., candy). In this phase, the experimenter reinforced each appropriate request for candy (i.e., mands) and placed aggression on extinction. The objectives of this phase were to teach Mary a response that was functionally equivalent to aggression and to demonstrate an inverse relationship between the responses.

Signaled FT 30 s: Aggression correlated with reliable reinforcement ($p = 1$) *and mands correlated with extinction* ($p = 0$). In this condition, two experimenters were present in the room with Mary. One experimenter was correlated with reinforcement for aggression, and one experimenter was correlated with extinction for mands. To start a session, each

experimenter gave Mary a piece of candy and then placed the candy bags within her visual field but outside her reach. Therefore, the two experimenters were analogous to the two black boxes that were used in Experiments 1 and 2. Mary's response to an experimenter (either through aggression or a mand) served as a choice of an initial link. The experimenter correlated with reinforcement provided a piece of candy for each aggression and did not respond to mands; the other experimenter placed mands and aggression on extinction. Only aggression directed to the experimenter correlated with reinforcement are graphically presented.

*Signaled FT 30 s: Aggression correlated with reliable reinforcement (*p = *1) and mands correlated with unreliable reinforcement (*p = *.5).* In this condition, the procedures were the same as in the preceding condition except that the experimenter correlated with unreliable reinforcement provided a piece of candy for mands according to the reinforcement schedule. In addition, this condition included distinct verbal statements from the experimenters (similar to the colored blocks used in Experiments 1 and 2) as the terminal-link outcomes. For example, the experimenter correlated with reliable reinforcement always said, "You can have a piece of candy; let me get it," contingent on aggression. The experimenter correlated with unreliable reinforcement said (when the outcome was food), "I'll give you candy after I put away this book." The experimenter waited until the terminal-link schedule (FT 30-s) expired before providing the candy. When the outcome was no food, the experimenter said, "You cannot have more candy." Aggression or mands that occurred during the terminal links were recorded but had no programmed consequences.

Results and Discussion

Results for Mary are presented in Figure 3. In the top panel, the functional analysis shows that Mary's aggression was sensitive to tangible reinforcement (i.e., edible condition). During FCT plus EXT, there was an inverse relation between aggression and mands. That is, mands occurred at high rates and aggression occurred at low rates (lower panel of Figure 3) when reinforcement schedules favored mands. However, when mands were placed on extinction and aggression was reinforced on an FR 1 schedule (i.e., extinction mand), only aggression was observed. Responding during the signaled FT 30-s conditions showed a preference for the unreliable alternative when mands had a .5 probability of reinforcement (unreliable conditions) but not when mands were placed on extinction (extinction mand).

The results of Experiment 3 replicate the findings of Experiment 1 and extend them to socially significant behavior (i.e., mands and aggression). In general, these findings suggest that conditioned reinforcement effects influence preference for unreliable reinforcement and that adult reactions to children's behavior may function as conditioned reinforcers. Similar to basic research, these conditioned reinforcers, because of the context in which they occur, may influence an individual's preference for unreliable reinforcement.

GENERAL DISCUSSION

The findings from the present studies replicate those of previous basic research on preference for unreliable reinforcement and extend the findings to human behavior. In Experiment 1, participants chose a response alternative that produced a lower overall rate of primary reinforcement (i.e., unreliable reinforcement). The participants' preference for unreliable reinforcement occurred only when distinct stimuli were correlated with a specific outcome (i.e., signaled conditions) and with the relatively longer terminal-link

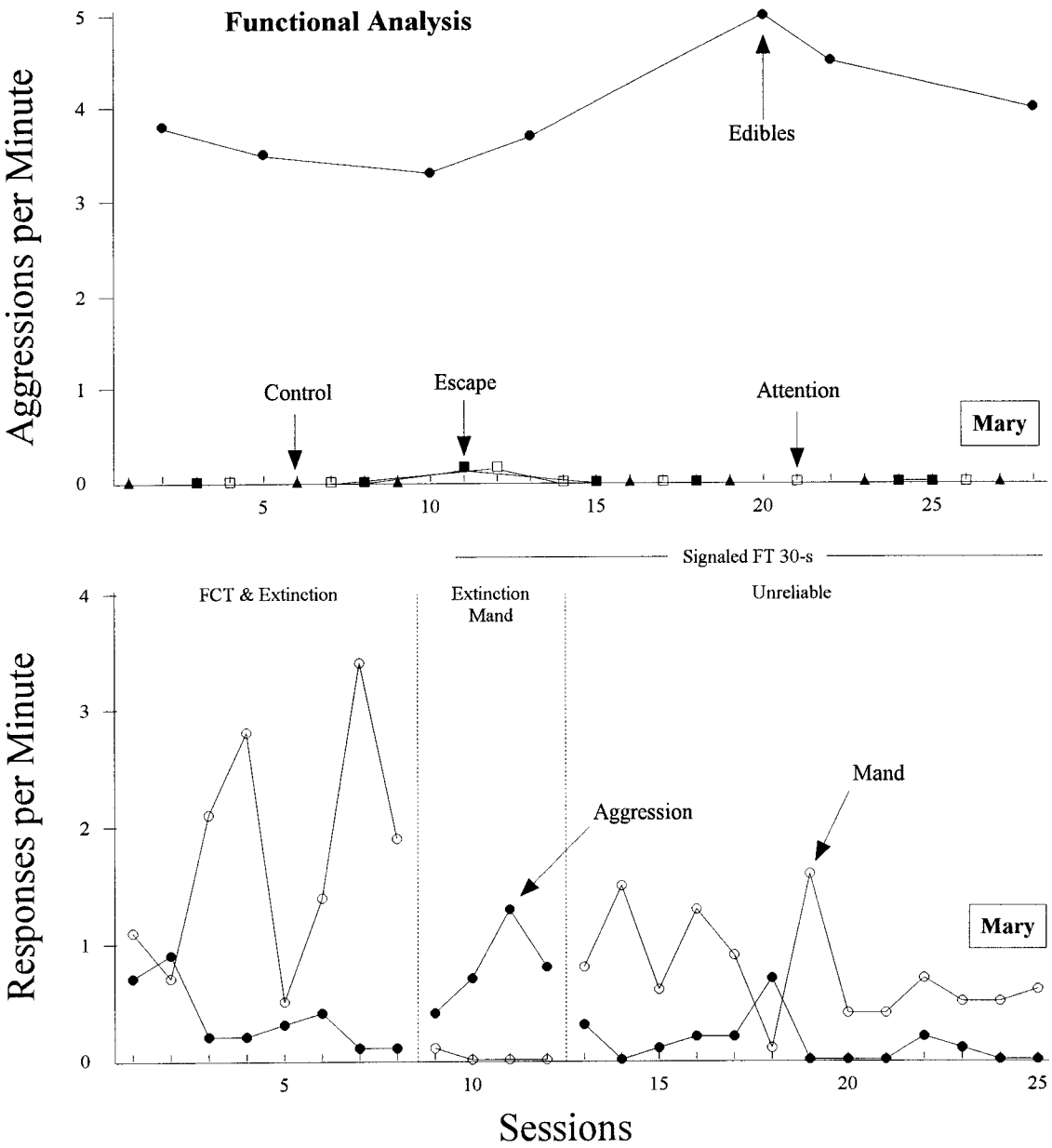

Figure 3. Aggression per minute for Mary during the functional analysis (top panel) and responses per minute for aggression and mands during functional communication training plus extinction, extinction for mands, and the signaled FT 30-s conditions during Experiment 3.

schedule (i.e., an FT 30-s rather than an FT 10-s schedule). Our findings are consistent with previous basic research (Dunn & Spetch, 1990; Kendall, 1974, 1985; Spetch et al., 1990) that showed that pigeons' preference for unreliable reinforcement was influenced by both the signaled outcomes and the duration of the terminal-link schedule. Based on the findings of Experiment 1, it appears that conditioned reinforcement may influence human behavior during concurrent-chains procedures in a manner similar to that of pigeons. That is, the distinct stimuli (i.e., colored blocks) may have func-

tioned as conditioned reinforcers during the longer FT schedules (30 s).

Belke and Spetch (1994) suggested that if preference for the unreliable alternative is influenced by the conditioned reinforcement value of the terminal-link stimulus (i.e., colored blocks), then delaying the presentation of the stimulus should degrade its conditioned reinforcement effect. The authors presented data showing an initial preference for unreliable reinforcement that was reversed to the reliable reinforcement alternative when a 5-s separation was imposed between the initial (choice of a black box in the present study) and terminal links. In Experiment 2, Marti initially showed a preference for the unreliable alternative when reinforcement schedules were correlated with distinct stimuli (i.e., signaled FT 30-s conditions); however, her preference was reversed when the presentation of the colored blocks (i.e., terminal-link stimuli) were delayed by 10 s. Although the delay used in the present study (10 s) differed from that used by Belke and Spetch (5 s), our findings support the notion that the effects of conditioned reinforcement are weakened by delaying the onset of the terminal-link stimulus on the unreliable reinforcement alternative. In both studies, the delay of the terminal-link stimulus resulted in a shift to a preference for reliable reinforcement. Thus, the delay conditions may have been functionally similar to the unsignaled conditions (in which a distinct stimulus was not correlated with a specific outcome) that produced a preference for reliable reinforcement (Belke & Spetch, 1994).

In Experiment 3, we assessed preference for unreliable reinforcement during a clinical situation using the procedures from Experiment 1. That is, we assessed the effects of signaled terminal-link stimuli (i.e., the experimenter's verbal statements) during situations in which either aggression (i.e., aggression $p = 1$, mands $p = 0$) or aggression ($p = 1$) and mands ($p = .5$) produced reinforcement. During the conditions in which aggression produced edible items on a continuous (FR 1) schedule and mands were placed on extinction, Mary showed nearly exclusive preference for aggression. However, when the probability of reinforcement for mands was .5, Mary showed a preference for mands. Thus, the results of Experiment 3 are similar to those of Experiment 1, which showed that participants preferred unreliable reinforcement during signaled conditions. Taken together, the findings suggest that the signals correlated with the outcomes, and the context in which they occur, may influence preference for unreliable reinforcement.

The findings of the present study may have clinical implications for the treatment of problem behavior that persists although it produces an unfavorable reinforcement (i.e., unreliable reinforcement) schedule relative to an alternative response. First, the preference for unreliable reinforcement reported in this study and in previous work with pigeons (Belke & Spetch, 1994; Dunn & Spetch, 1990; Spetch et al., 1990) may be due to conditioned reinforcement effects. Specifically, choice in the initial-link phase (i.e., choice of a black box or an experimenter) is influenced by the primary reinforcement correlated with each alternative and by conditioned reinforcement related to the onset of the terminal-link stimuli (colored blocks or experimenters' verbal statements). That is, the terminal-link stimulus correlated with reinforcement (S+) in the unreliable alternative is established as a conditioned reinforcer because it occurs in the context of a terminal-link stimulus correlated with no reinforcement (S−). Therefore, the S+ is correlated with a differential outcome (food), and its onset reinforces the response on the initial link. Thus, the terminal-link stimulus correlated with reinforcement in the unreliable alternative is established as a relatively

stronger conditioned reinforcer because of the context in which it occurs. These conditioned reinforcement effects may override the lower percentage of the primary reinforcement alternative.

The use of distinct stimuli in situations in which there is a delay to reinforcement may help clinicians reduce the probability of problem behavior. For example, during our clinical work we have frequently used a timer to signal when reinforcement is forthcoming. In a recent study, Vollmer, Borrero, Lalli, and Daniel (1999) used either a timer or a hand gesture to signal a delay to reinforcement for 2 participants whose problem behaviors were maintained by access to tangible reinforcement. Their findings showed that rates of problem behavior were lower when the delay to reinforcement was signaled. Thus, the findings from the current study and Vollmer et al. suggest that the use of distinct stimuli to signal delays to reinforcement may help to overcome disparities in reinforcement schedules (the current study) or reinforcer delay (Vollmer et al.). In addition, the findings from Experiment 2, which showed that delaying the presentation on the colored blocks weakened its effect, suggest that the delay to reinforcement should be signaled immediately.

Second, it appears that the conditioned reinforcement effects are greatest when the delay to primary reinforcement is longest (e.g., 30 s compared to 10 s). Although only FT 10-s and 30-s schedules were used the present study, the delay to reinforcement for 1 participant in the Vollmer et al. (1999) study was extended to 10 min using a digital timer. Taken together, these findings suggest that the use of distinct stimuli (e.g., gestures, timers, verbal statements) to signal extended delays in reinforcement warrants further investigation.

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STUDY QUESTIONS

1. How did the authors define reliable and unreliable reinforcement?

2. Describe the differences between signaled and unsignaled reinforcement conditions in Experiment 1.

3. Under what conditions was preference for unreliable reinforcement observed during Experiment 1? What explanation did the authors provide for this pattern of results?

4. What was the purpose of Experiment 2, and how did the results of Experiment 2 clarify the role of the terminal-link stimuli?

5. Describe the schedule of reinforcement for aggression and mands during each of the treatment conditions in Experiment 3.

6. Describe the general pattern of results obtained in Experiment 3. The authors attributed Mary's response allocation during unreliable reinforcement conditions to the presence of conditioned reinforcers (distinctive statements). What other factor may have influenced response allocation during this condition?

7. In the discussion, the authors suggested that participants' preference for unreliable reinforcement may have been due to the superior conditioned reinforcement effects of the stimulus correlated with this condition. How could one design an experiment to directly test this possibility?

8. Based on the results of this study, how might clinicians arrange conditions to support appropriate behaviors that can be reinforced only after a delay? What type of therapeutic intervention makes explicit use of this strategy?

Questions prepared by Eileen Roscoe and Rachel Thompson, The University of Florida