A PARADOXICAL EFFECT OF PRESESSION ATTENTION ON STEREOTYPY: ANTECEDENT ATTENTION AS AN ESTABLISHING, NOT AN ABOLISHING, OPERATION

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Previous studies have shown that presession attention for problem behavior can serve as an abolishing operation when attention functions as a positive reinforcer. In the current study, we show that the stereotypy of a child with severe disabilities was undifferentiated during standard analogue functional analysis conditions. However, when noncontingent presession attention was provided, stereotypy occurred for social attention as a positive reinforcer, suggesting that the antecedent manipulation functioned as an establishing operation.

DESCRIPTORS: stereotypy, functional analysis, positive reinforcement, establishing operation, motivating operation, presession attention

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Motivating operations (MOs) change the probability of behavior under the control of reinforcement contingencies by altering the value of reinforcing stimuli (Laraway, Snycerski, Michael, & Poling, 2003). When an MO functions as an establishing operation (EO), the reinforcing effects of a stimulus are increased. When an MO functions as an abolishing operation (AO), the reinforcing effects of a stimulus are decreased. Correspondingly, EOs serve to increase the probability of responding, whereas AOs decrease response probability.

Several studies have analyzed the motivation of problem behavior in terms of AOs (e.g., Berg et al., 2000; McComas, Thompson, & Johnson, 2003; O'Reilly, 1999). For example, McComas et al. showed that presession attention reduced the probability of problem behavior maintained by positive reinforcement in the form of attention relative to sessions with

no presession attention. Such analyses show that presession attention can serve as an AO for attention as a positive reinforcer. However, at least one well-known behavioral technique, *priming*, suggests that presession attention could function as an EO, rather than an AO, thus increasing the probability of responding rather than decreasing it. Priming involves the noncontingent presentation of a stimulus prior to its use as a contingent reinforcer and can serve as an EO for the reinforcing effects of the stimulus (Catania, 1998).

In the current analysis, we studied whether presession attention could function as an EO rather than an AO. Initially, the stereotypy of a child with severe disabilities was analyzed using standard analogue functional analysis conditions (i.e., alone, attention, control, and demand). We then provided noncontingent presession attention under the same analogue conditions to see if attention as a positive reinforcer increased in value via increases in response probability. We then withdrew the presession attention and observed whether behavioral patterns reversed to baseline levels.

METHOD

Participant, behavior, and setting. The child was a 10-year-old boy with severe mental

retardation. He was nonverbal, but used several gestures and vocalizations to communicate his wants and needs. The stereotypical response was a full-body flex that involved quickly raising his hands above his head while simultaneously extending his legs. All sessions were conducted in a room (4 m by 4 m) with several tables and chairs.

Measurement and interobserver agreement. Sessions were videotaped, and the stereotypical response was scored as frequency counts using a paper-and-pencil system. Two observers independently scored 50% of sessions. Interobserver agreement was measured by dividing the smaller value by the larger and multiplying by 100%. Mean interobserver agreement was 88% (range, 75% to 100%).

Design and procedure. A combined A-B-A and multielement design was used (Kennedy, 2005). The multielement aspect of the design was used to study stereotypy during an analogue functional analysis involving alone, attention, control, and demand conditions (see Iwata, Slifer, Dorsey, Bauman, & Richman, 1982/1994). One of each type of condition was conducted once per day. Each condition was 5 min in length, with a 5-min break between conditions. All contingent events were for stereotypy. In the alone condition, the participant was in a room without any activities or social stimulation, and no consequences were delivered. During the attention condition, social interaction was withheld until stereotypy was emitted, which occasioned 5 s of attention. In the control condition, the child had access to attention for the absence of stereotypy and noncontingent access to preferred activities. In the demand condition, instructional requests were made every 10 s. If the task was completed, the child was praised. If stereotypy occurred, the researcher removed the materials and did not present them again until stereotypy was absent for 30 s.

The A-B-A aspect of the design compared no presession attention with noncontingent presession attention. Prior to the start of the no-presession-attention sessions, there was no interaction with the participant for 20 min. In noncontingent presession attention, the child was provided with 20 min of attention before the analogue functional analysis sessions began. Noncontingent attention consisted of positive verbal comments delivered every 30 s. All presession manipulations occurred in the same room as the functional analysis. Each presession manipulation was followed by a daily block of four functional analysis conditions as described previously. The order of the functional analysis conditions was randomly determined for the first phase and was repeated in each subsequent phase to assess possible sequence effects.

RESULTS AND DISCUSSION

An initial functional behavioral assessment using interviews and observations resulted in an inconclusive outcome, but some informants noted that the child enjoyed attention. We conducted an initial analogue functional analysis to test the hypothesis that attention was a positive reinforcer (see Figure 1). However, during the initial analysis with no presession attention, an undifferentiated pattern of stereotypy was observed. To further test the hypothesis that attention was a positive reinforcer, we opted to use priming of this behavioral function by providing noncontingent attention prior to functional analysis sessions. When noncontingent presession attention was delivered during the second phase, elevated levels of stereotypy occurred during the attention condition, but low levels of stereotypy were observed in other conditions. A return to the initial no-presession-attention procedure again resulted in an undifferentiated pattern of responding, suggesting that the behavior was sensitive to attention as a positive reinforcer, but that an EO was required.

Our data suggest that presession attention acted as an EO, increasing the value of social attention as a positive reinforcer during the
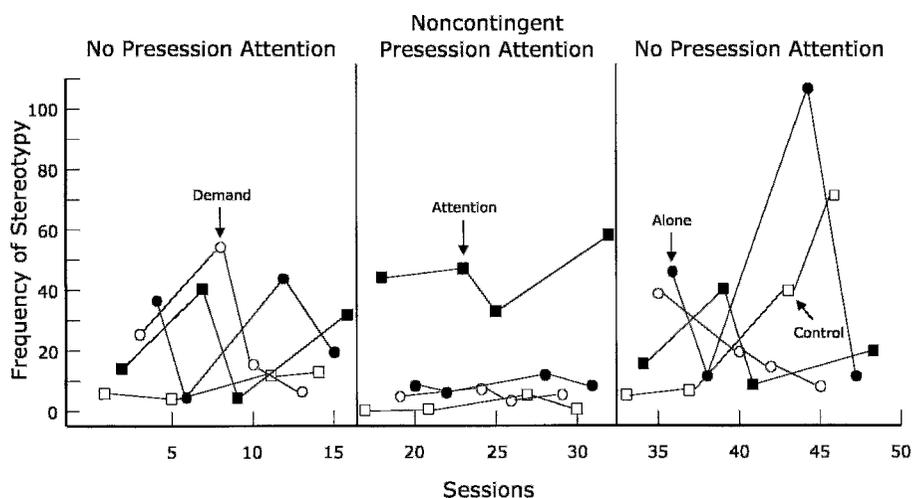
Figure 1. Frequency of stereotypy (*y* axis) and individual analogue functional analysis sessions (*x* axis). Conditions included alone, attention, control, and demand. During the A phases no presession attention was provided, and during Phase B noncontingent presession attention was provided.

subsequent functional analysis. In previous studies of MO effects on problem behavior, presession attention has been shown to function as an AO but not an EO. Therefore, one implication of our findings is that individuals who conduct functional assessments of problem behavior need to consider the possibility that presession events can serve as either AOs or EOs for attention. It is possible that a curvilinear relation exists between exposure to presession attention and its effect as either an EO or AO, with EO effects occurring initially and AO effects emerging over time. Thus, presession manipulations may function as an EO or AO, depending on the temporal relation between presession exposure and the functional analysis. However, such a functional relation remains to be empirically demonstrated.

The data also suggest that when researchers are presented with undifferentiated patterns of behavior during initial functional analyses, manipulation of presession attention may assist in identifying possible functions of problem behavior relating to social attention as a positive reinforcer. Our data showed that an initially undifferentiated pattern of stereotypy was changed to a highly differentiated pattern by

the addition of noncontingent presession attention. It is possible that presession attention acted to prime attention as a positive reinforcer, therefore inducing a more differentiated pattern than seen during the no-presession-attention phases. Given that the undifferentiated pattern was reestablished with the withdrawal of presession attention, the effects were probably not due to changes in the discriminative control exerted by the functional analysis conditions, but rather to an alteration in the reinforcing values of the various conditions via the EO being analyzed. Whether similar results can be obtained by manipulating other presession variables and their potential effects on reinforcers remains to be analyzed.

Our findings also contribute to an emerging understanding of stereotypy as a complexly determined behavior. Stereotypy has often been presumed to function primarily as sensory reinforcement (i.e., nonsocial positive or negative reinforcement; Lovaas, Newsom, & Hickman, 1987). However, the results of several recent investigations (e.g., Kennedy, Meyer, Knowles, & Shukla, 2000) suggest that stereotypy can also function to occasion, maintain, avoid, or escape socially mediated reinforcers.

Hence, researchers need to carefully assess the potential functions of stereotypy prior to developing behavioral intervention plans. In addition, our findings suggest that MOs need to be considered in the analysis of stereotypy as functional variables in their own right.

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