JOURNAL OF APPLIED BEHAVIOR ANALYSIS 2003, **36,** 259–261 NUMBER 2 (SUMMER 2003)

FUNCTIONAL ANALYSIS AND TREATMENT OF VERBAL PERSEVERATIONS DISPLAYED BY AN ADULT WITH AUTISM

RUTH ANNE REHFELDT AND MARK R. CHAMBERS

SOUTHERN ILLINOIS UNIVERSITY

The function of perseverative speech for an adult man who had been diagnosed with autism and mental retardation was examined. Results showed that verbal perseverations were maintained by social attention. An intervention consisting of differential reinforcement of appropriate verbal responses and extinction of perseverative verbal responding was effective in decreasing verbal perseverations.

DESCRIPTORS: verbal perseverations, functional analysis, autism

Individuals with autism often display stereotyped or repetitive use of language, such as perseverating on the same subject. Behavior-analytic efforts have shown that similar impairments in language and communication exhibited by persons with autism are often under environmental control, and can be reduced via the systematic arrangement of environmental variables. For example, Schreibman and Carr (1978) differentially reinforced stating "I don't know" in response to unfamiliar questions, and as a result, echolalia was reduced in children with autism. Similarly, Durand and Crimmins (1987) showed that a child's inappropriate speech was maintained by escape from demands. Similar results have been obtained for the bizarre, delusional vocalizations exhibited by individuals with schizophrenia (e.g., DeLeon, Arnold, Rodriguez-Catter, & Uy, 2003; Dixon, Benedict, & Larson, 2001; Wilder, Masuda, O'Connor, & Baham, 2001). In the present report, we extended these studies by conducting an analysis of the verbal perseverations displayed by a man with autism that were maintained by social attention.

We extend our thanks to Specialized Training and Adult Rehabilitation in Murphysboro, Illinois. Special thanks to Dana Dahman, Julia Lenhoff, and Heather Sobery for assisting with the reliability data.

Address correspondence to Ruth Anne Rehfeldt, Rehabilitation Institute, Rehabilitation Services program, Mailcode 4609, Southern Illinois University, Carbondale, Illinois 62901-4609 (e-mail: rehfeldt@siu.edu).

METHOD

Participant and Setting

Vince was a 23-year-old man who had been diagnosed with autism and mild mental retardation. He also experienced seizures that were controlled by medication. Vince took 100 mg of Phenytoin four times daily, 100 mg of Sertraline once daily, 10 mg of Bisoprolol once daily, and 100 mg of Trazedone once daily throughout the duration of the study. Vince attended a sheltered workshop. When given the opportunity to converse, he typically perseverated on specific topics. All sessions were conducted in a room that included a table and chairs.

Response Measurement and Interobserver Agreement

Perseverative speech was defined as discrete statements that occurred at least 3 s apart and focused on one the following topics: (a) sirens or alarms, (b) dentist or doctor appointments, or (c) coughing. All subsequent comments emitted during a session that focused on one of these topics were scored as perseverative. Appropriate verbal responses (defined as statements or questions

that occurred at least 3 s apart and were not focused on the above three topics) were also recorded during the last half of the intervention. Frequency counts of appropriate and inappropriate verbal responses were recorded. Interobserver agreement was collected during 30% of the sessions and was calculated for each category by dividing the smaller number of verbal responses by the larger number of verbal responses and multiplying by 100%. The mean agreement was 90% for perseverative (range, 83% to 100%) and 92% for appropriate (range, 71% to 100%) verbal responses.

Procedure

All sessions lasted 10 min. A multielement design was used for the analogue functional analysis, and a reversal (BABAB) design was used to study the intervention effects.

Functional analysis. Four functional analysis conditions were randomly alternated. During the attention condition, 10 s of attention was provided contingent upon verbal perseverations. This attention included both reciprocal statements (e.g., "you sure do like those sirens, don't you?") and mild reprimands (e.g., "you shouldn't talk about sirens so much at work"). Vince typically received both forms of attention from staff contingent on inappropriate verbal behavior during his work day. During the demand condition, Vince was asked to complete the same vocational tasks that he typically completed over the course of his work day (e.g., paper sorting and filing). Each instance of verbal perseveration produced 30 s of escape from the tasks. During the alone condition, Vince remained in the room alone, and the experimenter recorded his verbal responses from outside the room. During the tangible condition, Vince was provided with 30 s of access to preferred activities (writing about sirens, fire drills, etc.) contingent upon verbal perseverations.

Baseline for intervention. A baseline condition, identical to the attention condition of the functional analysis, was used to evaluate the frequency of Vince's perseverative verbal responses in the absence of intervention.

Attention intervention. The intervention consisted of differential reinforcement of alternative (DRA) verbal responses (i.e., appropriate and nonperseverative) and extinction of verbal perseverations. Approximately 5 s of attention and eye contact were provided contingent on appropriate verbal responses. The experimenter did not respond with verbal statements or eye contact when Vince emitted inappropriate verbal behavior.

RESULTS AND DISCUSSION

The top panel of Figure 1 shows the number of perseverative verbal responses during the functional analysis. These results indicate that perseverative speech was maintained by social attention. The bottom panel shows the effects of the intervention (DRA and extinction). The data indicate that the intervention was successful in reducing Vince's perseverative speech each time the intervention was in effect, relative to the baseline. Also shown is the number of appropriate verbal responses that were recorded during the contingency reversals. The data indicate that the intervention was effective in increasing Vince's appropriate verbal responses.

These results extend earlier findings that showed that the unusual speech of people with autism is sensitive to environmental contingencies (DeLeon et al., 2003; Durand & Crimmins, 1987; Schreibman & Carr, 1978) and underscore the valuable role that functional analysis methodology can play in improving the conversational skills of people with autism. These results also replicate the findings of Wilder et al. (2001), in which a DRA and extinction intervention decreased inappropriate speech and increased appro-

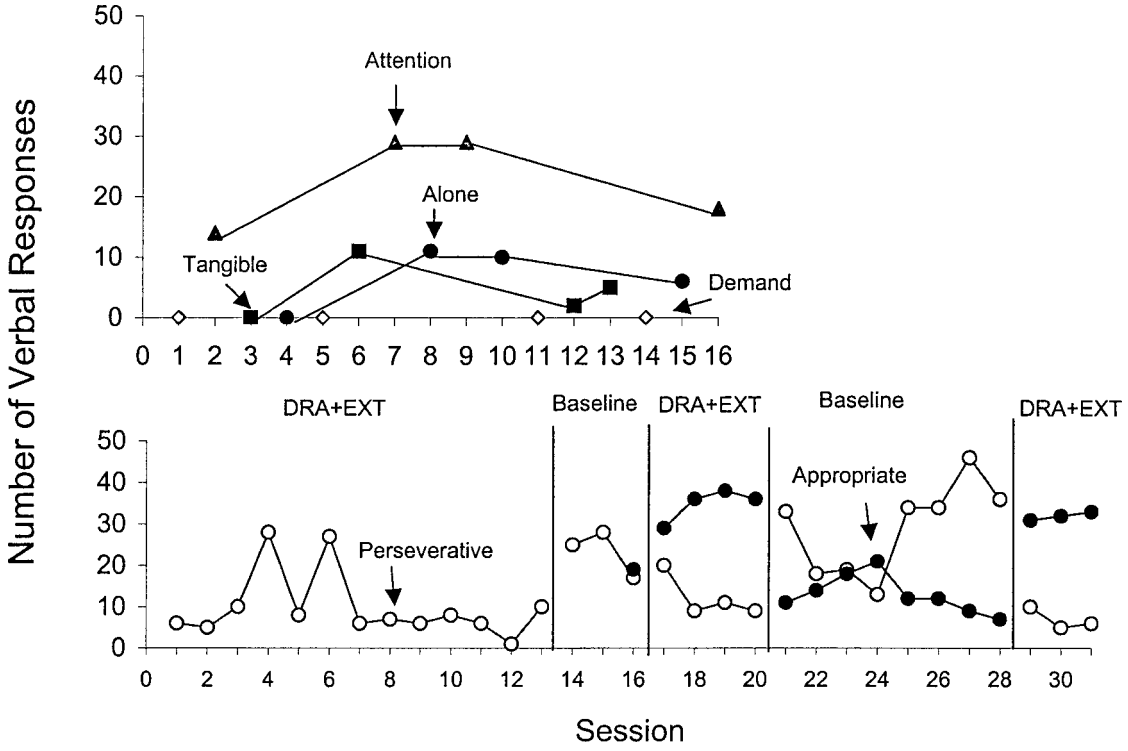

Figure 1. The number of perseverative verbal responses emitted by Vince during the four conditions of the functional analysis (top panel) and the number of perseverative and appropriate verbal responses during the baseline and intervention phases (bottom panel).

priate speech. A limitation of this study is that the generality of these findings to Vince's everyday work environment was not established. Future research should address the generalization of treatment gains to more naturalistic settings.

REFERENCES

DeLeon, I. G., Arnold, K. L., Rodriguez-Catter, V., & Uy, M. L. (2003). Covariation between bizarre and nonbizarre speech as a function of the content of verbal attention. *Journal of Applied Behavior Analysis, 36,* 101–104.

Dixon, M. R., Benedict, H., & Larson, T. (2001). Functional analysis and treatment of inappropriate verbal behavior. *Journal of Applied Behavior Analysis, 34,* 361–363.

Durand, V. M., & Crimmins, D. B. (1987). Assessment and treatment of psychotic speech in an autistic child. *Journal of Autism and Developmental Disorders, 17,* 17–28.

Schreibman, L., & Carr, E. G. (1978). Elimination of echolalic responding to questions through the training of a generalized verbal response. *Journal of Applied Behavior Analysis, 11,* 453–463.

Wilder, D. A., Masuda, A., O'Connor, C., & Baham, M. (2001). Brief functional analysis and treatment of bizarre vocalizations in an adult with schizophrenia. *Journal of Applied Behavior Analysis, 34,* 65–68.

Received June 10, 2002
Final acceptance February 18, 2003
Action Editor, Craig Kennedy