

*SHAPING APPROACH RESPONSES AS INTERVENTION FOR SPECIFIC  
PHOBIA IN A CHILD WITH AUTISM*

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We evaluated contact desensitization (reinforcing approach responses) as intervention for specific phobia with a child diagnosed with autism. During hospital-based intervention, the boy was able to encounter previously avoided stimuli. Parental report suggested that results were maintained postdischarge.

DESCRIPTORS: contact desensitization, specific phobia, autism, changing-criterion design

Few controlled studies describe effective treatment of fears in people who have developmental disabilities (cf. Erfanian & Miltenberger, 1990; Rapp, Vollmer, & Hovanetz, 2005). One approach, termed *contact desensitization*, exposes an individual to the phobic (avoided) stimulus by gradually shaping approach responses. Positive reinforcement is presented contingent on completion of steps in an exposure hierarchy. Preventing escape from the phobic stimulus sometimes is a component of treatment (e.g., Rapp et al.), although this strategy might be difficult to implement and might evoke or elicit challenging behavior (e.g., resistance, agitation, struggling). In the present study, we evaluated contact desensitization with a child who had been diagnosed with autism and specific phobia, using positive reinforcement without escape prevention, and

measuring approach responses within and between intervention sessions.

## METHOD

### *Participant and Setting*

Rich was an 8-year-old boy with autistic disorder who was receiving treatment at a psychiatric inpatient unit for children with developmental disabilities. He had been admitted to the unit due to problem behavior at school and home. His language and cognitive abilities were estimated to be at an age equivalent of 4.5 years. When he was 1.5 years old, Rich first demonstrated intense fear reactions to animatronic objects (electronic animated figures) such as a dancing Elmo<sup>®</sup> doll, blinking Halloween decorations, and life-sized Santa Claus replicas. Upon seeing such stimuli he would scream, try to flee, and hit any person attempting to block his escape. At the time of hospital admission, Rich's parents were unable to take him into stores or visit other community locations where these objects were present. The unit psychologist at the hospital gave Rich a diagnosis of specific phobia

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We thank Kenneth Brown for his contributions to the study.

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doi: 10.1901/jaba.2006.158-05

(300.29) (American Psychiatric Association, 1994). Rich was prescribed several medications that did not change during the study (aripiprazole, alprazolam, clonidine, and dextedrine).

### *Response Measurement*

A therapist interacted with Rich during baseline and intervention sessions conducted in a room (4 m by 5 m). A single session lasting 15 min was scheduled each day. In all sessions, three animatronic toys (dancing Elmo<sup>®</sup> doll, dancing Santa Claus figure, jumping Tigger<sup>®</sup> toy) were placed 5 m from the entrance to the room. This distance was marked by placing lines of tape 0.3 m apart on the floor (distance criteria), beginning at the entrance of the room and stopping at a terminal criterion 1 m in front of the figures. The terminal criterion placed Rich at arm's reach from the figures so that he could touch them when requested by the therapist. Using a 15-s whole-interval recording method, an observer scored the percentage of intervals in which Rich remained at the specified distance criteria during baseline and intervention sessions.

In addition, at the beginning and end of each session, the therapist implemented an approach probe assessment by requesting Rich to approach the animatronic figures (i.e., the toy). The requirement of an approach probe was that Rich stand with the therapist for several seconds at the terminal distance criterion (1 m in front of the figures; about arm's length). Assessment data were recorded as the distance Rich remained from the phobic stimulus after moving there immediately upon request (e.g., moving to within 3 m from the stimuli would be scored 3 m). Five minutes into each session, the therapist also presented a touch probe assessment every 60 s by requesting Rich to independently touch the figures. A successful touch probe was defined as Rich standing at the terminal distance criterion and putting his hand on one of the animatronic figures. Touch probe data are presented as the percentage of successful touch probes per session. The use of

approach and touch probes provided a within-session measure of progress.

Point-by-point interobserver agreement (number of agreements divided by the number of agreements plus disagreements multiplied by 100%) was assessed during 28% of sessions and averaged 88% for the in-session proximity measure and 100% for the approach and touch probes.

### *Procedure*

*Baseline (three sessions).* Several of Rich's preferred objects (tools, catalogs, magazines) were placed beside the animatronic figures. Preference was determined by staff who interacted with Rich on the inpatient unit. The therapist presented the probe assessment requests in each session. If Rich complied, the therapist praised him and permitted access to the preferred objects. If Rich said "no" to the request or walked away, the therapist simply waited until the next probe request. Rich was allowed to leave the room at any time; if he exited, the therapist terminated the session.

*Intervention (15 sessions).* In the first two intervention sessions, Rich had uninterrupted access to the preferred objects, which were placed at the distance criterion located 6 m from the figures. Starting with the third session, the distance criterion was advanced in a five-step graduated sequence that required Rich to remain 5 m (Step 1), 4 m (Step 2), 3 m (Step 3), 2 m (Step 4), and 1 m (Step 5; terminal criterion) from the figures. He continued to have access to the preferred objects at each of these session-specific distance criteria. Steps were changed when Rich remained at the specified distance criterion in 90% of more of recording intervals during two consecutive sessions. If he attempted to move the preferred objects away from the specified distance criterion, the therapist replaced them and reminded him to stay at the location. As in baseline sessions, the therapist presented probe assessment requests and did not prevent him from leaving the room. Unlike baseline sessions,

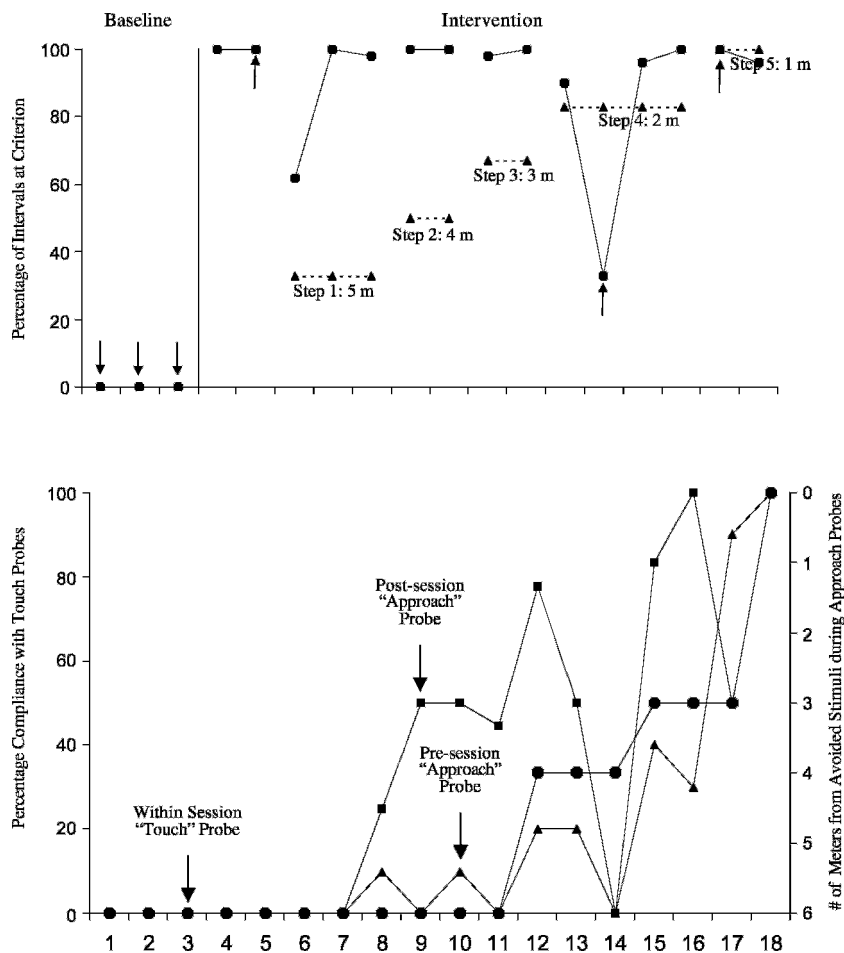


Figure 1. The top panel shows the percentage of recording intervals in which Rich remained at the specified distance criterion during baseline and intervention sessions (circles). The distance criteria are depicted by the triangle data path. Arrows indicate sessions in which he exited the room. The bottom panel shows percentage of compliance with touch probes (circles) and pre- and postsession approach probes (triangles and squares, respectively) during baseline and intervention sessions.

the preferred objects were not placed beside the animated figures during probe assessments.

*Experimental Design*

The effect of reinforcing approach responses on proximity to phobic stimuli was evaluated using a changing-criterion design.

RESULTS AND DISCUSSION

The top panel of Figure 1 shows the percentage of recording intervals in which Rich remained at the specified distance criterion

during baseline and intervention sessions. During baseline, he never moved beyond the entrance to the room (6 m from the animatronic figures). With intervention, Rich was able to approach and remain at the specified distance criteria as they were advanced in closer proximity to the animatronic figures. Rich exited the room during each baseline session but only three times during the course of intervention. On each of these six occasions, he exited with less than 30 s remaining in the session. Results of the approach and touch

probe assessments are also presented in Figure 1. Rich did not comply with the therapist's touch or approach probe requests during the three baseline sessions and the initial four intervention sessions. Subsequently he demonstrated improved compliance, approaching and touching the figures on 100% of requests during the final session.

Treatment of specific phobia in this case made access to preferred objects contingent on gradually increasing approach responses to phobic stimuli. The intervention evaluation demonstrated that Rich increased proximity to previously avoided stimuli. By including probe assessments, it was revealed that as intervention progressed he was able to gradually approach and make contact with the animated figures when requested. The present intervention might be conceptualized as differential reinforcement of approach responses (approach resulted in a more potent reinforcer than escape).

Escape prevention was not a component of the present intervention; thus, Rich could terminate a session by walking out of the room. Because he exited the room infrequently during intervention and only exited near the end of sessions when he did so, our conclusion is that graduated exposure to a phobic stimulus with contingent positive reinforcement (Jones & Friman, 1999) can be effective without preventing escape. In contrast to intervention packages that include escape prevention (e.g., Rapp et al., 2005), this strategy should eliminate prevention-related problem behavior, perhaps making implementation easier and more acceptable for treatment providers. Conversely, applying escape prevention could facilitate the intervention. We recommend that clinicians consider first implementing intervention without escape prevention. If multiple escapes occur early during intervention, escape prevention could be added.

One limitation of the present study is that specific fear responses were not recorded. Anecdotally, we observed that Rich did not

have extreme reactions as his proximity to the animatronic figures increased, perhaps because intervention demands were gradual and he was never forced to confront the phobic stimuli. A second limitation is that there was no assessment of generalization outside the intervention sessions, in the presence of different animatronic figures, and without the presence of preferred stimuli.

The final session of the study occurred 2 days before Rich was discharged from the hospital. At this time, we advised his mother to bring him to stores and events that contained animatronic figures. Three months after intervention, she reported that he occasionally protested these situations but tolerated the stimuli without escape. This outcome supports the external validity of intervention. Acknowledging the scarcity of behavior-analytic assessment and intervention in inpatient child psychiatry, our results suggest that hospital-based treatment of a clinical disorder such as specific phobia can be evaluated rapidly and produce a positive outcome. The study also supports contact desensitization without escape prevention as an effective fear-reduction intervention for children who have developmental disabilities.

## REFERENCES

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Erfanian, N., & Miltenberger, R. G. (1990). Brief report: Contact desensitization in the treatment of dog phobia in persons who have mental retardation. *Behavioral Residential Treatment, 5*, 55–60.
- Jones, K. M., & Friman, P. C. (1999). A case study of behavioral assessment and treatment of insect phobia. *Journal of Applied Behavior Analysis, 32*, 95–98.
- Rapp, J. T., Vollmer, T. R., & Hovanetz, A. N. (2005). Evaluation and treatment of swimming pool avoidance exhibited by an adolescent girl with autism. *Behavior Therapy, 36*, 101–105.

*Received November 1, 2005*

*Final acceptance April 4, 2006*

*Action Editor, James E. Carr*