

*EFFECTS OF EXTINCTION ALONE AND
EXTINCTION PLUS FUNCTIONAL COMMUNICATION TRAINING ON
COVARIATION OF PROBLEM BEHAVIORS*

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In this investigation, extinction (EXT) was applied alone or in combination with functional communication training (FCT) to less severe topographies of problem behavior while more severe topographies continued to be reinforced. EXT alone decreased less severe and increased more severe topographies of problem behavior (i.e., response covariation), whereas EXT with FCT reduced all topographies of problem behavior to near-zero levels.

DESCRIPTORS: response covariation, extinction, functional communication training, severe disabilities

Individuals with severe disabilities who engage in problem behavior frequently display multiple response topographies that vary in severity and frequency but are members of the same functional response class (Sprague & Horner, 1992). It is not uncommon for behavior-reduction programs to target one problem behavior at a time. However, punishment of one problem behavior (e.g., disruption) may decrease that response and increase another behavior (e.g., aggression) if the responses are maintained by the same reinforcer (Grace, Kahng, & Fisher, 1994; Sprague & Horner, 1992). When extinction is applied to some but not all topographies of problem behavior, more severe forms of problem behavior may emerge, either as part of an extinction burst or simply as new alternative topographies. An intervention that includes reinforcement for a functionally equivalent alternative response (e.g., communication), concurrent with implementation of extinction, may help to pre-

vent increased occurrence or emergence of more severe forms of problem behavior (Sprague & Horner, 1992). This case study was designed to evaluate the effects of implementing extinction for some problem behaviors of a functional response class, with and without concurrent reinforcement of an alternative communication response.

METHOD

David was a nonverbal 19-year-old male with severe to profound developmental disabilities. Sessions were conducted and videotaped in David's group home. The target behaviors included both less severe (e.g., walking away from task area, pushing or putting away task materials) and more severe (e.g., throwing and pounding objects, hitting or slapping himself, and hitting or kicking others) topographies of problem behavior, and prompted and unprompted manding (manually signing "break"). Trained observers viewed the videotapes and scored occurrences of target behaviors using the computer software described by Repp, Felce, and Karsh (1991). Interobserver agreement coefficients were computed for 33% of sessions by dividing agreements by the sum of agreements plus disagreements multiplied by

This research was supported by the U.S. Department of Education, Grant H023A30098. The authors thank Robert Horner and Craig Kennedy for their comments on an early draft.

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100%. Mean interobserver coefficients for the target behaviors were, for more severe responses, $M = 99.75$ (range, 94 to 100); for less severe responses, $M = 98.75$ (range, 75 to 100); for prompted communication, $M = 100$; and for unprompted communication, $M = 94.5$ (range, 67 to 100).

Based on a functional assessment (O'Neill, Horner, Albin, Storey, & Sprague, 1990), two functional analysis conditions (demand and play) were conducted using a multielement design. During demand, David was prompted to load a dishwasher or wash windows using verbal prompts, modeling, and physical assistance, as needed. Praise was provided contingent upon completion of a task step, and a 30-s break (i.e., escape) was provided contingent upon any problem behavior (i.e., either more or less severe responses). During play, preferred activities (e.g., music, TV, water sprinkler) were continuously available to David. The instructor remained physically present in the play area, provided assistance when David requested it (e.g., turning on the TV when he pointed at it), or praised an appropriate response (e.g., pointing). However, the instructor left the play area for 30 s contingent upon any problem behavior. All functional analysis and treatment sessions lasted 10 min except for Sessions 10, 12, 15, and 22, which were terminated early due to the severity of David's problem behavior.

Next, the effects of extinction (EXT) alone (applied only to less severe responses) or in combination with functional communication training (FCT) were evaluated using a reversal design. The demand condition described above served as baseline and is termed continuous reinforcement (CRF) (all) for this analysis. The second condition, EXT (less severe), was identical to CRF (all) except that the less severe responses were placed on extinction (i.e., no longer produced escape). More severe responses, however, continued to produce a 30-s escape

from task. FCT + EXT (less severe) was identical to EXT (less severe) except that David was verbally and physically prompted to emit the manual sign "break" when a problem behavior occurred. The instructor blocked walking away or other less severe responses and said, "David, show me 'break' if you want a break." Signing "break" (either prompted or unprompted) was reinforced with a 30-s break (i.e., escape). The fifth condition, EXT (com) + CRF (all), was identical to CRF (all) except that communication responses were placed on extinction and no longer produced escape from tasks. Finally, the effects of FCT + EXT were assessed during a 2-week follow-up session.

RESULTS AND DISCUSSION

The top panel of Figure 1 shows the results of the analogue functional analysis. The mean rate of problem behavior was 1.7 per minute in demand and 0.2 per minute in play, thus supporting the hypothesis that problem behavior was maintained by escape from demands. The figure also shows the effects of EXT (less severe) and FCT + EXT (less severe) on less and more severe problem behaviors (middle panel) and prompted and unprompted communication (bottom panel). During CRF (all), when both less and more severe problem behaviors produced escape (i.e., first and third phases), the less severe responses occurred at higher rates ($M_s = 1.6$ and 2.6 , respectively) than the more severe responses ($M_s = 0.2$ and 0.4 , respectively). When extinction was applied to less severe responses and more severe responses continued to produce escape (second phase), the mean rate of less severe responses decreased to 0.2 and the mean rate of more severe response increased to 1.6 (i.e., response covariation). Also, a topography that had not been previously observed (forcefully pushing the instructor away) emerged during this condition. In contrast, during FCT

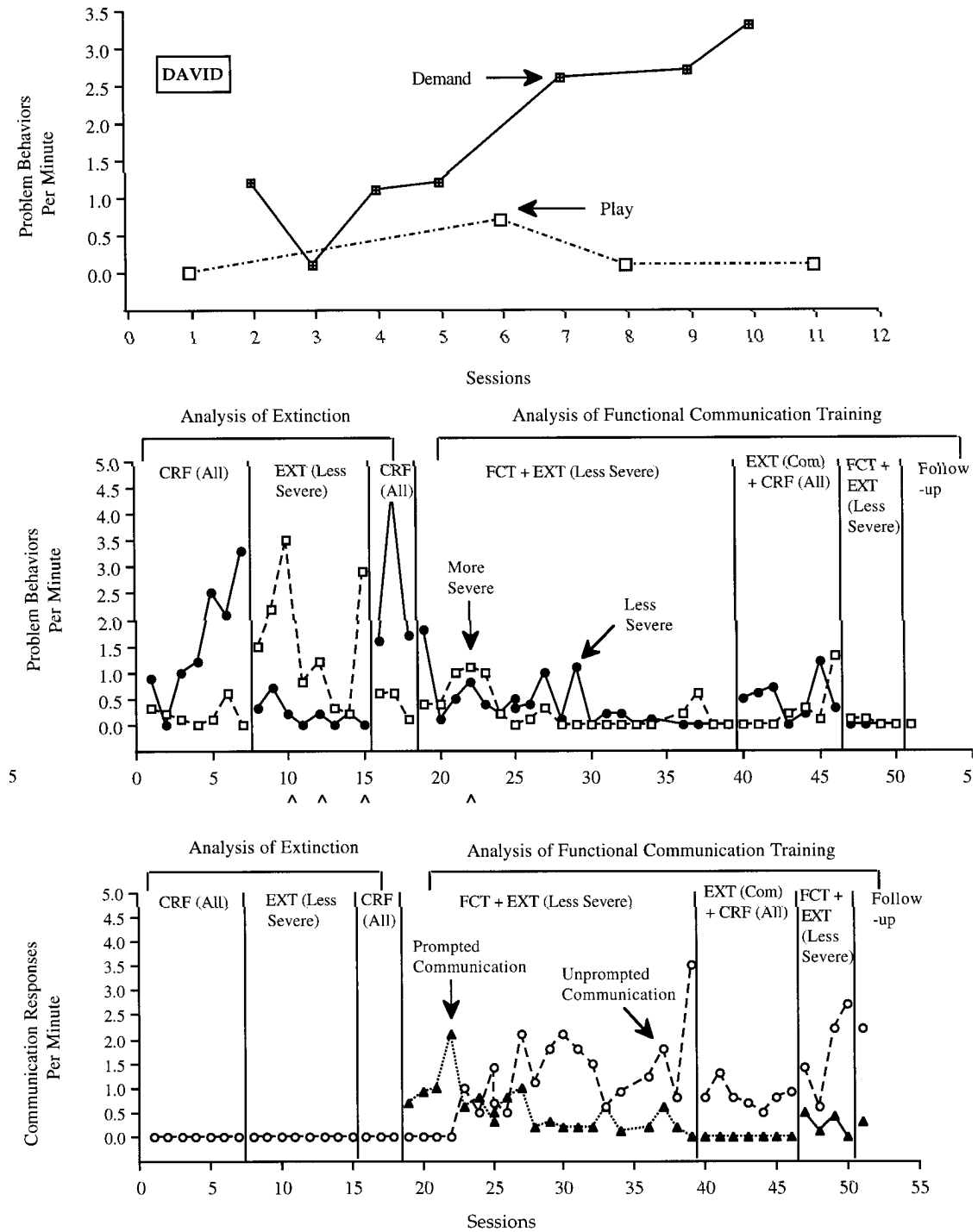


Figure 1. Rate of (a) total problem behaviors for David (top panel) during functional analysis procedures, (b) more and less severe problem behavior (middle panel), and (c) prompted and unprompted communication (bottom panel) during extinction and functional communication training procedures. A hatchmark indicates that sessions were terminated early due to the severity of target behavior.

+ EXT (less severe), when extinction was applied to less severe responses and both more severe responses and communication produced escape, all problem behavior decreased to near-zero levels. Initially in the first FCT + EXT (less severe) phase, all communication was prompted; however, as the phase continued, prompted communication decreased and unprompted communication increased. Interestingly, unprompted communication decreased only slightly when placed on extinction in the fifth phase ($M = 0.8$) with slight increases for less and more severe problem behaviors ($M_s = 0.5$ and 0.3 , respectively). During a 2-week follow-up session, problem behavior remained at zero.

This case study illustrates how an individual's problem behavior may escalate from less to more severe topographies when less severe responses are placed on extinction. Behavioral escalation from less to more severe responses is commonly observed in clinical settings, and these results suggest that response covariation may account for at least some forms of behavioral escalation. Second, this study shows how reinforcement of a functionally equivalent communication response may prevent behavioral escalation when support staff members are able to apply extinction to less severe but not to more severe problem behavior. That is, if the individual is able to obtain equal or greater

rates of reinforcement with a simple communication response, more severe topographies of problem behavior may be less likely to emerge when less severe responses are placed on extinction. However, these conclusions should be regarded as tentative because the effects of EXT (less severe) were not replicated in this investigation, and the effectiveness of FCT + EXT (less severe) may have been partially influenced by the prior implementation of EXT (i.e., a potential sequence effect).

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Received July 5, 1995

Final acceptance July 15, 1996

Action Editor, Wayne W. Fisher