The Effects of Schedule of Reinforcement on Stimulus Overselectivity in Autistic Children

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Recent research demonstrated that when autistic children are presented a discrimination task with multiple cues, they typically respond to an abnormally limited number, usually one, of the available cues. This phenomenon, termed "stimulus overselectivity," has been implicated as a possible basis for many of the behavioral deficits characteristic of autism. The present investigation was conducted to systematically analyze the effects of changing the schedules of reinforcement during discrimination training on subsequent stimulus overselectivity. Twelve autistic children were taught a discrimination involving multiple visual cues, with a CRF schedule of reinforcement. The children were then overtrained on either the same (CRF) schedule or on a partial (VR:3) reinforcement schedule. Subsequent overselectivity on single-cue test trials was then assessed. Results suggested that significantly less overselectivity occurred when the children were presented with the VR:3 reinforcement schedule during

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383
overtraining. These results are discussed in terms of variables influencing overselectivity and in terms of implications for designing treatment procedures for autistic children.

In the past 15 years research in behavior modification has made considerable contributions toward improving the behavior of autistic children (cf. reviews by Egel, Koegel, & Schreibman, in press; Koegel, Egel, & Dunlap, in press; Lovaas & Newsom, 1976; Rincover & Koegel, 1977; etc.). In an effort to attack the syndrome more globally, interest has increased in the role of antecedent stimuli (as compared to reinforcement stimuli) for modifying autistic behavior (cf. Koegel & Schreibman, 1974; Schreibman & Koegel, in press). This interest stems in part from the unusual type of responding autistic children make to their physical environment (e.g., Ornitz & Ritvo, 1968; Schopler, 1965). As early as 1943, Kanner noted that autistic children "tuned out," or are "in their own world." He and others (cf. Koegel & Schreibman, 1976) also noted that the children are frequently suspected of (unconfirmed) blindness or deafness. However it is apparent that the unresponsiveness of these children is highly variable. For example, a child may fail to respond to a loud sound, such as a door slamming, but may react excessively (e.g., by covering his ears) to the sound of a newspaper rustling.

This variability in responding led us to focus on the role of antecedent stimuli because we wanted to (a) relate the manner in which these children respond to environmental stimuli to abnormalities in their learning, and (b) then modify their response to environmental stimuli in a manner that would make their learning more similar to that of normal children. When presented with simultaneous multiple cues, normal children typically respond on the basis of a limited number of the available cues (e.g., Eimas, 1969; Hale & Morgan, 1973; Hale & Piper, 1973; Ross, 1976; Trabasso & Bower, 1968). In addition, the number of simultaneous cues to which normal children respond generally increases with age. This allows for the more advanced levels of learning characteristic of developmental trends.

Whereas normal children respond to an increasing number of cues as they mature, there is a substantial body of literature suggesting that when autistic children are presented a discrimination involving complex stimuli, they selectively respond, regardless of age, on the basis of fewer cues than normal (frequently only one). This phenomenon has been labeled "stimulus overselectivity" (Lovaas, Schreibman, Koegel, & Rehm, 1971) and has been implicated as possibly responsible for many of the behavioral characteristics of autism (Lovaas, Koegel, & Schreibman, in press; Schreibman & Koegel, in press; Schreibman, Koegel, & Craig, 1977). In the area of social behavior, it is often reported that autistic children fail to establish normal relationships with other people (cf. Kanner, 1943; Rutter, 1978). We have observed that these children learn to recognize people by very limited cues,