Recent advances in the assessment of aberrant behavior maintained by automatic reinforcement in individuals with developmental disabilities

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Abstract

Many aberrant behaviors exhibited by individuals with developmental disabilities are maintained by “automatic reinforcement”. These behaviors are often difficult to treat, with the most effective behavioral interventions often resulting in only moderate success. However, a series of recent studies has advanced our ability to understand and treat these behaviors through the innovative use of behavioral assessment. We review the recent development of three categories of assessments: (a) nonhypothesis-based stimulus preference assessments, (b) hypothesis-based stimulus preference assessments, and (c) hypothesis-based assessments incorporating noncontingent reinforcement and sensory extinction procedures. We consider each category’s contribution to both our ability to prescribe effective behavioral interventions and our ability to more fully understand the concept of automatic reinforcement. © 2000 Elsevier Science Ltd. All rights reserved.

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B. F. Skinner (1953) used the term \textit{automatic reinforcement} to refer to the maintaining variable(s) for operant behaviors whose reinforcers are not mediated by the social environment. For these behaviors, the maintaining reinforcer is a direct result of the behavior (Vaughan & Michael, 1982). If these direct consequences function to increase
behavior, they may result in automatic positive reinforcement (e.g., singing to yourself to produce auditory stimulation) or automatic negative reinforcement (e.g., scratching your arm to alleviate an itch).

For several decades, the concept of automatic reinforcement has been applied to the classification of certain aberrant behaviors exhibited by individuals with developmental disabilities (Shore & Iwata, 1999). The development of the experimental functional analysis has improved our ability to determine which variables maintain aberrant behavior by presenting and withdrawing stimuli in a controlled setting and observing corresponding behavioral changes (Iwata, Dorsey, Slifer, Bauman, & Richman, 1994, reprinted from 1982). Recently, Iwata et al. (1994) reported an epidemiological study of 152 functional analyses of self-injurious behavior (SIB). The authors reported that approximately one-fourth of the functional analyses resulted in a pattern consistent with a hypothesis of automatic reinforcement (these patterns are discussed in more detail below in Section 1.

Vollmer (1994) discussed the difficulty in treating aberrant behavior maintained by automatic reinforcement. Interventions for socially mediated aberrant behavior usually address the function of the behavior in the course of treatment. Common function-based interventions may include extinction, differential reinforcement, non-contingent reinforcement (NCR), or a combination of these interventions (Carr, Coriaty, & Dozier, 2000). When the maintaining variable is not socially mediated and/or not specifically identified, many of these function-based treatments become more difficult or impossible to implement. Instead, the clinician must rely on two categories of interventions: punishment and stimulus competition. Punishment involves the presentation of aversive stimulation that merely overpowers the automatic reinforcer produced by the response (Shore & Iwata, 1999). Interventions based on stimulus competition place an arbitrarily chosen stimulus in competition with the concurrently available functional reinforcer. Stimulus competition can be contrasted with stimulus substitution, in which a new stimulus is directly substituted for the functional reinforcer (thus, eliminating the concurrent choice between two qualitatively different reinforcers).

Environmental enrichment (EE) is a common example of an intervention that is based on stimulus competition. Several reviews of the treatment literature have indicated that interventions based on stimulus competition have been only modestly effective in reducing aberrant behavior. LaGrow and Repp (1984) reviewed several treatment studies on stereotypic responding and found that EE was effective in only five of the seven studies in which it was employed. In many studies, EE resulted in only moderate decreases in aberrant behavior and sometimes actually increased stereotypic responding when objects or social interactions were introduced. The authors concluded that “increased environmental or social interaction alone is not enough to reduce” stereotypic behavior (p. 598).

Historically, one of the most common decelerative interventions for aberrant behavior has been differential reinforcement (Lennox, Miltenberger, Spengler, & Erfanian, 1988). In early investigations, differential reinforcement procedures were often reported as effective (e.g., Repp, Deitz, & Deitz, 1976); however, there were also reports of ineffectiveness (e.g., Denny, 1980; LaGrow & Repp, 1984). Other literature
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