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Functional analysis of maladaptive behaviors: Rule as a transitive conditioned motivating operation

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ABSTRACT

The purpose of this study was to examine the role of a staff-delivered rule on the occurrence of challenging behavior (stereotypic touching) of an adult with severe intellectual disabilities. Four experimental functional analysis conditions were developed: (a) attention, (b) rule + attention, (c) rule only, and (d) control. Results showed that the percentage of intervals in which stereotypic touching responses (STR) occurred was greater within the experimental condition where a rule statement was embedded with contingent attention. Results are discussed in light of the plasticity of functional analysis technology to allow for stimulus variation within the typical social attention condition, and the suggestion that the rule statement, in this study, may function as a Transitive Conditioned Establishing Operation (CEO-T), asserting that the provision of attention is more valued in the presence of the stated rule.

1. Functional analysis of maladaptive behaviors: Rule as a transitive conditioned motivating operation

Individuals with developmental disabilities often engage in behaviors that pose challenges to those who support them. These behaviors can include those that pose dangers to the health and well-being of others or themselves (e.g., aggression or other potentially dangerous physical contact directed toward others and aggression or potentially dangerous physical contact between parts of their own bodies). Challenging behaviors can also include those that may not be dangerous, but serve to prohibit the individual who engages in such behaviors from participating in adaptive behaviors associated with independence in activities of daily living, or from participating in reciprocal social interaction with others. In dealing with challenging behaviors on the part of individuals with intellectual disabilities, it has long been asserted (e.g., Carr, 1977) that the occurrence of these behaviors may be influenced by the interplay of multiple factors at both the antecedent and consequence levels, and therefore effective treatment can be based on accurate analysis of these environmental events. To that end, behavior analysts have developed a range of procedures to describe relations between behavior and naturally-occurring environmental antecedents and consequences via descriptive assessment (e.g., Eckert, Martens, & DiGennaro, 2005; Herscovitch, Roscoe, Libby, Bourret, & Ahearn, 2009; Kern, Hilt, & Gresham, 2004; McKerchar & Thompson, 2004; Thompson & Iwata, 2001), while others have developed procedures to systematically manipulate environmental antecedent and consequence stimuli as a means to discover functional relations between such stimulus changes and related behaviors

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via functional analysis (e.g., Bloom, Iwata, Fritz, Roscoe, & Carreau, 2011; Derby et al., 1992; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982; Lanovaz, Rapp, & Fletcher, 2010; Sigafoos & Saggers, 1995).

While descriptive assessment remains a common practice in the effort to identify the environmental stimuli that exert functional control over aberrant behavior, researchers (e.g., Thompson & Iwata, 2001; Thompson & Iwata, 2007) have shown that the results of descriptive assessments alone do not often correlate with those produced by functional analyses. Functional analysis may be described as an operant method consisting of several well defined analog environmental conditions, whose application results in the empirical identification of functional properties for maintaining aberrant behavior (Iwata et al., 1982). The most common experimental conditions include: (a) attention from others, (b) escape from instructional demand, (c) access to tangible items, (d) alone/no interaction, and (e) control (Carr & LeBlanc, 2003). It is advised that functional analysis be utilized as part of the assessment process, and the resulting data obtained during the functional analysis drive the development of behavioral intervention decisions.

In cases when the function of an aberrant response is not clearly identified through standard functional analysis experimental conditions, it may be necessary to: (a) modify conditions of the analysis by altering the schedule of reinforcement (Lalli & Casey, 1996); (b) modify conditions of the analysis by altering demand quality (Belfiore, Browder, & Lin, 1993); (c) change the duration of the analysis sessions (Vollmer, Marcus, Ringdahl, & Roane, 1995); (d) evaluate the reinforcing value of specific components of the identified reinforcing stimulus (Goh et al., 1995); and/or (e) fully ensure that the putative reinforcing stimuli are preferred (Lalli & Kates, 1998). For example, when outcome data from functional analysis conditions result in reinforcement-based interventions that incorporate preferred stimuli (d) and (e) above, those interventions may rely at least in part on the manipulation of antecedent stimulus changes or antecedent stimulus conditions that establish the potential reinforcers as such.

Motivating Operations (MOs), also discussed as either Establishing Operations (EOs) or Abolishing Operations (AOs), are such antecedent stimulus changes or antecedent stimulus conditions that alter the reinforcing effectiveness of other stimuli and subsequently alter some dimension of a response or members of a response class associated with the stimuli whose reinforcing value have been established or abolished (Laraway, Snycerski, Michael, & Poling, 2003; McGill, 1999; Michael, 2000).

Motivating operations may be incorporated, or at least accounted for, in both functional analysis procedures (Call, Wacker, Ringdahl, & Boelter, 2005; Lalli & Casey, 1996; McGill, 1999; Thomas & Fraiser, 2005), and the resulting intervention procedures (Endicott & Higbee, 2007; Lang et al., 2009, 2010). Accounting for motivating operations within functional analysis and treatment, Lalli and Casey (1996) discovered through descriptive analysis that aggressive behavior in a six-year-old boy toward his mother was temporally related to her requests to terminate interactive play activities and clean up toys. Aggression was often followed by access to the toys and interaction, and a termination of the request to clean up. This descriptive analysis was then supported experimentally via an analog functional analysis, which showed that aggression was evoked by antecedent conditions that involved termination of attention and introduction of a demand, and maintained by contingent access to attention and break from the demand. As a result, the authors concluded that behaviors were likely multiply maintained by (a) the negative reinforcement (escape from cleaning up) that typically followed the aggression and (b) positive reinforcement in forms of both, continued or resumed access to the toys, as well as attention from the mother. While aggression was targeted for deceleration, compliance was defined and targeted for acceleration. Initially, differential reinforcement was provided for compliance and consisted of continued access to the toys and a brief break from the demand. The participant did not respond to treatment, however, until reinforcement for compliance also included continued access to the mother's attention. Following this, rates of aggression dropped dramatically and rates of compliance increased. This demonstrated the utility of focusing on multiple maintaining variables within behavioral treatment, which can be identified via a well-designed assessment.

Whereas Lalli and Casey (1996) accounted for motivating operations using more traditional functional analysis experimental conditions, Call et al. (2005) demonstrated the utility of combining antecedent variables as a way to manipulate motivating operations during analog conditions themselves, as a way to eliminate "false negatives" within standard functional analysis procedures. In some cases, no instances of target behavior occur in the functional analysis, yet continue to be observed in the natural environment. In the Call et al. (2005) study, the experimenters were tasked with assessment and intervention for two individuals, both of whom engaged in aggression, and one of whom also engaged in destructive behaviors. Following a preliminary assessment procedure in which demands (interaction with materials in a low-preference activity) were identified via a process derived from preference assessment, the authors developed two combined-antecedent conditions by modifying two single-condition scenarios to include a secondary antecedent variable. Specifically, the experimenters created a modified demand condition for one participant to include attention deprivation as an additional antecedent within the context of a demand condition (and to provide contingent attention upon occurrence of problem behavior). For the other participant, the authors included restriction to high-preference tangible items/contingent access to high-preference tangible within a demand condition. For both participants, single-condition analogs yielded little to no occurrence of problem behaviors, but the combined conditions demonstrated an evocative effect. Resulting treatment consisted of Functional Communication Training (FCT) and differential reinforcement, in which the participants were taught to request reinforcers identified within the functional analysis procedures and reinforced for doing so, while problem behaviors were placed on extinction.

Motivating Operations may be unconditioned, meaning that no conditioning or learning process is necessary for them to affect reinforcer value or behavior, or they may be conditioned, in which case these effects are the result of a learning history.