Title: Programming Functional Communication Training for Persistence: Requests during Extinction Following Fixed and Variable Reinforcement Schedules For Two Participants with Autism

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Introduction: Functional communication training (FCT) is often used to treat challenging behavior through first identifying a functional reinforcer to challenging behavior and then applying differential reinforcement to an alternative response with the challenging behavior on extinction. Traditional FCT programming often includes a continuous reinforcement schedule arrangement for the alternative behavior, which theoretically may limit the persistence of the alternative response when it is introduced to the thinned and variable reinforcement schedules in the natural environment. Researchers have attempted to improve the durability of FCT in several ways, including the use of schedule thinning (Betz, Fisher, Roane, Mintz, & Owen, 2013; Hanley, Iwata, & Thompson, 2001), multiple and intermittent reinforcement of the challenging behavior with correlated stimuli (Worsdell, Iwata, Hanley, Thompson, & Kahng, 2000), and demand fading (Wacker et al., 2011). The purpose of the current study was to continue this line of inquiry through investigation of the effects of FCT delivered with fixed ratio (FR1) and then variable ratio (VR3) reinforcement schedules on the alternative responses (requests) and on the idiosyncratic and challenging behaviors of two children with autism during extinction probes.

Method: Julia and Javier, two children diagnosed with autism who did not engage in verbal communication or aided or augmentative communication independently, participated in this study. To examine the effects of FCT during FR1 and VR3 reinforcement schedules on requests, idiosyncratic responses (Julia) and challenging behavior (Julia and Javier), we employed single subject experimental designs (adapted from Wacker et al., 2011). First, structured descriptive observations were conducted to identify potential contexts with idiosyncratic or challenging behavior. Second, functional analyses identified functions to any challenging behavior typographies. Last, FCT was used to target one (Javier) or two (Julia) alternative requests. The children’s parents conducted all of the study activities in the family home while receiving live coaching from an interventionist via telehealth (i.e., video conferencing).

Results: During initial FCT, both of the participants improved in use of the requests and subsequent decreases in the idiosyncratic responses, including idiosyncratic (Julia), and challenging behavior (Julia and Javier). Both participants displayed increased responding in at least one panel for extinction probes following VR3 schedules (Javier decreased responding occurred during one of the extinction probes, and Julia did not have an extinction probe following VR3 in one panel). Julia also experienced slightly elevated levels of an untargeted self-injury (SIB) during extinction following VR3.

Discussion: Implications from this study provide support for continued use of requests when FCT is moved from a FR1 to a VR3 schedule of reinforcement and strengthened responding of the requests in extinction sessions following some of the VR3 schedules. In addition, this study extended schedule thinning to FCT aimed at increasing early communication skills through identifying and targeting idiosyncratic responses in one of the participant’s repertoires. However, our results should be interpreted with caution as one of the participants also experienced slight increases in an untargeted form of challenging behavior (SIB). This finding is consistent with other literature in that differential reinforcement of alternative responding has been shown to increase the resistance to extinction of challenging behavior (Mace, McComas et al., 2010). Similarly, increasing persistence of an alternative response such as a request may not be sufficient at increasing the durability of FCT, as resurgence (i.e., the emergence of a previously extinguished response when an alternative response is placed on extinction) of challenging behavior has been demonstrated to occur in conditions even where an alternative response persists (Wacker et al., 2013).
References/Citations: