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Assessing preference for social interactions

Casey J. Clay [a], Andrew L. Samaha [b,*], Sarah E. Bloom [a], Bistra K. Bogoev [b], Megan A. Boyle [a]

[a] Department of Special Education and Rehabilitation, Utah State University, United States
[b] Department of Psychology, Utah State University, United States

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ABSTRACT

We examined a procedure to assess preference for social interactions in individuals with intellectual and developmental disabilities. Preferences were identified in five individuals using a paired-choice procedure in which participants approached therapists who provided different forms of social interactions. A subsequent tracking test showed that participants' approaches were under control of the form of social interaction provided as opposed to idiosyncratic features of the therapists. Results of a reinforcer assessment found that the social interaction identified as preferred also functioned as a reinforcer for all five participants.

1. Introduction

A number of techniques have been described that allow for the identification of preferred and reinforcing stimuli in individuals with language and communication deficits (see Hagopian, Long, & Rush, 2004 for a review). Several of these approaches involve a two-phase process (e.g., DeLeon & Iwata, 1996; Fisher et al., 1992; Pace, Ivancic, Edwards, Iwata, & Page, 1985; Roane, Vollmer, Ringdahl, & Marcus, 1998). In the first phase, an individual's approaches toward or interactions with a set of stimuli are evaluated. In the second phase, stimuli approached most often are then provided contingent on performance of a response. Increases in that response relative to a baseline condition provide evidence that the stimulus functions as a reinforcer. Preference assessments are useful because they are relatively brief and predictive reinforcing efficacy, of performance under both increased work requirements (DeLeon, Frank, Gregory, & Allman, 2009) and extended work periods (Keyl-Austin, Samaha, Bloom, & Boyle, 2012).

For example, DeLeon et al. (2009) identified high, moderate, and low-preferred stimuli before providing them contingent on behavior under progressive ratio schedules. Progressive ratio schedules involve systematically increasing response-requirements within a session and performance on progressive ratio schedules is often characterized in terms of breakpoints, or the highest ratio requirement participants complete successfully for a given stimulus. Intuitively, stimuli associated with greater breakpoints are more effective reinforcers. The authors reported that high-preference stimuli resulted in larger obtained break points on progressive ratio schedules, as compared to moderate and low-preferred stimuli. Likewise, Keyl-Austin et al. (2012) evaluated responding during extended 30-min sessions when both highly and moderately preferred stimuli were delivered response-contingently. Results suggested that although response rates were similar at the beginning of sessions, rates declined more rapidly for moderate-preference stimuli as compared to high-preference stimuli.

* Corresponding author at: Department of Psychology, Utah State University, 2810 Old Main Hill, Logan, UT 84322-2810, United States. Tel.: +1 435 797 1633.
E-mail address: andrew.samaha@usu.edu (A.L. Samaha).

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Findings from both of these studies suggest that stimulus preference can not only predict reinforcer efficacy in general, but also predict important aspects of performance.

A seminal study by Fisher et al. (1992) evaluated a procedure for identifying preferred stimuli in a forced-choice format. Over successive trials, stimuli are presented to participants in pairs until every stimulus has been paired with every other stimulus. Approaches to one of the stimuli from each pair results in brief access and relative preference is inferred from the proportion of trials in which each stimulus is selected. As Fisher et al.'s data suggested, individuals might show indistinguishable patterns of approach to two stimuli presented in a single-item format even when they consistently select one over the other when the stimuli are presented in a forced- or paired-choice format. The latter approach was a technological improvement over previous single-item formats (Pace et al., 1985) because of its sensitivity to differences in degree of preference. Such relative sensitivity is often described by ranking the stimuli according to degree of preference to produce a preference hierarchy (Fisher et al., 1992; Piazza, Fisher, Hagopian, Bowman, & Toole, 1996). In addition to the clinical utility of being able to identify the most preferred stimulus in a given set, the assessment of preference through choice procedures allows for the subsequent investigation of a number of preference-related effects.

Other techniques have been described such as the multiple-stimulus without replacement (MSWO) and free-operant (FO; Roane et al., 1998) preference assessments, which take less time to conduct and are associated with less problem behavior. However, neither the MSWO nor the FO produce more consistent results across subsequent tests than the paired-choice preference assessment (DeLeon & Iwata, 1996; Windsor, Piche, & Locke, 1994). DeLeon and Iwata evaluated the consistency of results obtained using the MSWO, paired-choice preference assessment, and a multiple stimulus format similar to the FO in that a set of stimuli was presented and stimuli continued to remain available after selection by participants. DeLeon and Iwata found that participants' resulting preference hierarchies were more consistent across five repeated administrations of the paired-choice procedure as compared to the others assessments. Similarly, Windsor et al. compared the consistency obtained across six administrations of a paired-choice format and multiple-stimulus format and found consistency was greater across successive administration of the paired-choice format, replicating the results of DeLeon and Iwata.

The test–retest reliability of paired-choice format may be due to a number of factors. Unlike multiple-stimulus formats that may require individuals to select among a large set of stimuli, paired-choice preference assessments only require participants make selections between two choices on any given trial. As such, reliable results of multiple stimulus methods may be dependent on certain prerequisite skills on the part of the person being assessed, e.g., the ability and self-control to scan all of the available stimuli before making a selection, the sensory capabilities to distinguish between the stimuli, and perhaps the ability to ignore characteristics that draw one's attention but are not correlated with any response-strengthening aspects of the stimuli. Thus, paired-choice formats may be more appropriate for a broader set of individuals.

Indeed, the paired-choice preference assessment has been shown to be capable of detecting preference for stimuli in individuals exhibiting a broad range of intellectual abilities and skills including children (Fisher et al., 1992; Piazza et al., 1996), adults with intellectual and developmental disabilities (DeLeon & Iwata, 1996), children with visual impairments (Paclawskyj & Vollmer, 1995), and typically developing toddlers (Cote, Thompson, Hanley, & McKerchar, 2007). Thus, the reliability and broad applicability of the paired-choice preference assessment make it appealing for extension into understudied areas.

One particularly understudied area is the examination of methods to identify preferred forms of social interaction. Methods to identify preferred forms of social interaction may be useful if food or edibles are contraindicated (e.g., as in individuals with Prader–Willi Syndrome), if individuals lack the prerequisite skills to play appropriately with toys or activities, in cases when carrying and delivering potential reinforcers are impractical, or if the target behavior warrants a form of attention specifically (e.g., a request for attention). Further, there is accumulating evidence in typically developing individuals and nonhuman animals that repeated exposure to energy-rich food may be associated with an increased risk of obesity (see Anzman, Rollins, & Birch, 2010; Kenny, 2011 for reviews). In addition to the immediate health effects of eating high-caloric foods, their delivery might be accompanied by long-term changes in food preferences that in turn lead to health challenges later in life. Such evidence might suggest that reinforcement-based interventions relying heavily on food could affect long-term food preferences and have unintended downstream health effects. Health effects not withstanding, brain-imaging studies in obese and overweight humans have identified changes in the dorsal striatum indicative of reward hyposensitivity, the net result of which may be increased seeking of palatable foods (e.g., Stice, Spoor, Bohon, & Small, 2008). Although studies on the relative preference for food versus social interactions have not been conducted, increases in food seeking might exacerbate existing deficits in communication or social skills (to the extent that behavior maintained by food displace behavior maintained by social interactions) such as those present in individuals with autism. Therefore, overuse of food in reinforcement-based interventions may be associated with both long-term health effects and food preferences, the latter of which may be contraindicated for particular populations. Both possibilities invite a renewed need to identify effective reinforcers in other classes of stimuli, including social interactions.

Unfortunately, a number of difficulties may be encountered when attempting to evaluate individuals' preferences for social interactions. Whereas the appearance of food items is strongly related to their taste, social interactions do not necessarily have antecedents, such as physical appearance, that reliably signal their availability. Likewise, two tangible items can easily be presented at the same time by the same person. However, it may be difficult for the same therapist to signal the availability of two or more forms of social interaction.

One approach to ameliorating these problems may be to present choices between picture-cards or icons that result in brief access to some other extended activity (Graff & Gibson, 2003; Hanley, Iwata, & Lindberg, 1999). However, this approach