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Integrating Caregiver Report With a **Systematic Choice Assessment** to **Enhance Reinforcer Identification**

Full Text

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AUTHOR ABSTRACT
To determine client preferences, we asked caregivers to rank-order, according to predicted client preference, a standard list of items and a list generated using a structured interview for caregivers, the Reinforcer Assessment for Individuals with Severe Disabilities. Systematic choice assessments were then conducted with both sets of stimuli. A concurrent operants paradigm was used to compare the reinforcing effects of the highest preference stimulus identified from each list. Results indicated that caregiver predictions of client preferences were slightly better for the set of stimuli they generated than for the standard set, and the choice assessment identified more potent reinforcers from the set of stimuli generated by the caregivers than from the standard set.

An ongoing challenge for professionals working with clients who have severe to profound mental retardation is the identification of potent reinforcers (Wacker, Berg, Wiggins, Muldoon, & Cavanaugh, 1985). Over the last decade, a variety of strategies have been developed for selecting potential reinforcers for persons with severe disabilities (Charlop, Kurtz, & Casey, 1990; Dattilo, 1986; Wacker et al., 1985). Most investigators have focused on either (a) selecting potential reinforcers without testing whether or to what extent the stimuli could be used to increase a response (i.e., predicting but not verifying reinforcer function) (e.g., Cautela & Kastenbaum, 1967; Homme, Csanyi, Gonzales, & Rechs, 1969) or (b) assessing the reinforcing effects of stimuli without a procedure for predicting which specific stimuli would function as reinforcers (i.e., verification but not prediction of reinforcer function) (e.g., Dattilo, 1986; Wacker et al., 1985).

Procedures designed to assess and predict the reinforcing effects of stimuli have been referred to as stimulus preference assessments, whereas those designed to actually test the reinforcing effects of stimuli have been called reinforcer assessments (Pace et al., 1985). The distinctions between preference and reinforcer assessments are important. During stimulus preference assessment, client preference for a large number of stimuli are evaluated by

presenting stimuli to the client and measuring client response to the stimulus. Thus, stimulus preference assessments tend to be time efficient because of the simplicity of the method of presentation (e.g., giving the stimulus to the client) and the method of measurement of the dependent variable (e.g., measuring whether the client reaches for the stimulus). Reinforcer assessments ascertain reinforcer function but generally for a smaller number of stimuli. Thus, reinforcer assessments tend to be less time efficient than stimulus preference assessments because the former involves implementation of experimental procedures (e.g., collecting baseline data, implementing reversals).

During preference assessments, information is provided about client preferences for a large number of stimuli; however, the results do not demonstrate the reinforcing value of stimuli. That is, not all preferred stimuli function as reinforcers (i.e., just because one likes something, it does not mean it will change one's behavior). During a reinforcer assessment, an experimental manipulation is conducted to demonstrate that presentation of a stimulus following a behavior results in the increase in the frequency of that behavior. Therefore, Pace et al. (1985) made an important advancement in this area of investigation by combining a stimulus preference assessment designed to predict reinforcer function for a relatively large set of stimuli (i.e., 16) with a reinforcer assessment designed to verify reinforcer function for a small subset of stimuli identified as highly preferred by the stimulus preference assessment. Their stimulus preference assessment also was novel because they directly observed client responses to the 16 stimuli to measure preference and predict reinforcer function rather than relying solely on verbal reports from caregivers or clients.

Pace et al. (1985) presented 16 stimuli from a standard set to the client one at a time. Client approach responses (i.e., reaching for, smiling at, manipulating, or consuming the item) were used as a measure of preference. The reinforcing effects of highly preferred stimuli (i.e., stimuli that were approached by the client on more than 80% of trials during the preference assessment) were then tested. Pace et al. (1985) found that preferred stimuli identified in the preference assessment tended to function as reinforcers during the reinforcer assessment.

In a recent modification of Pace et al.'s (1985) preference procedure, Fisher et al. (1992) presented the stimuli in pairs and had the client choose one stimulus over the other. Pair-wise comparison was a method used in psychophysics to more accurately detect sensory thresholds (Gescheider, 1976). Similar methods also have been used to more precisely measure judgments and attitudes (Thurstone, 1927). Finally, basic operant research has demonstrated that when two reinforcement schedules are presented in isolation, large differences in reinforcement density can produce similar response rates. However, when the two schedules are in effect concurrently, response rates tend to match reinforcement density (Herrnstein, 1961), thus more accurately differentiating reinforcer value.

Fisher et al. (1992) placed two stimuli in front of the client during each trial. The client was given the first stimulus he or she approached, and the other stimulus was removed. Each stimulus was presented once with each of the other 15 stimuli. The authors found that presenting stimuli in a choice format during a preference assessment resulted in greater differentiation between preferred and nonpreferred stimuli than did the Pace et al. (1985) procedure and better predicted which stimuli would function as reinforcers when compared using a concurrent operants paradigm. Fisher et al. also found that a concurrent operants paradigm could be of clinical use for identifying the stimulus with the highest reinforcement potency because the rate of responding is a function of the magnitude (or quality) of the reinforcer when other factors are held constant (e.g., type of schedule, reinforcer rate, reinforcer delay). Similarly, Neef, Mace, and Shade

(1993) found that a concurrent operants paradigm can be useful for examining the relative and interactive effects of reinforcer rate, delay, and quality among persons with severe emotional disturbance.

Both Pace et al. (1985) and Fisher et al. (1992) used a standard set of 16 stimuli. This set was composed of two stimuli from each of the following eight categories: (a) visual (mirror & light), (b) auditory (music & beep), (c) olfactory (coffee grounds & hibiscus flowers), (d) edible (juice & graham cracker), (e) temperature (heat pad & ice pack), (f) vestibular (swing & rocking chair), (g) social (clap & hug), and (h) tactile (vibrator & fan). Green and colleagues (Green et al., 1988; Green, Reid, Canipe, & Gardner, 1991) found that conducting a systematic preference assessment using a similar set of 12 stimuli was generally superior to caregiver report. However, their results also raised the question of whether such a finite and unfamiliar set of stimuli provided a sufficient sample of potential reinforcers because for half of the subjects only one or fewer high preference stimuli from the standard set were identified (Green et al., 1991). Finally, Green et al. (1991) found that caregiver opinion may be a useful supplement when few or no high preference stimuli are identified from a standard set.

In the current investigation, we extended the literature on integrating caregiver report and systematic choice assessments by (a) developing a structured interview called the Reinforcer Assessment for Individuals with Severe Disabilities to help caregivers generate a list of potential reinforcers; (b) conducting two choice assessments, one using the standard set of stimuli and the other using the stimuli generated by the caregiver; and (c) using a concurrent operants paradigm during the reinforcer assessment to determine whether a choice assessment using the stimuli generated by caregivers identified more potent reinforcers than did a choice assessment conducted using the standard set of stimuli.

METHOD

SUBJECTS AND SETTING

Subjects were 6 individuals admitted to a specialized inpatient unit for the assessment and treatment of severe destructive behavior. Cher was an 8-year-old girl with profound mental retardation, a seizure disorder, and Rett syndrome whose behavior problems included aggression, self-injury, disruption, and mouthing inappropriate objects. Monro was a 5-year-old boy with profound mental retardation, pervasive developmental disorder, hyperactivity, and a seizure disorder. His behavior problems included self-injury, aggression, disruption, dangerous acts, mouthing, and elopement. Cher and Monro had no verbal communication and did not use any signs but would occasionally grab for preferred objects. Alec, an 11-year-old boy with profound mental retardation, autism, attention deficit hyperactivity disorder (ADHD), and Tourette syndrome, displayed behavior problems included self-injury, aggression, disruption, dangerous acts, and property destruction. Alec was able to follow one-step commands and verbally approximate or sign the words drink, bathroom, go, yes, and more. Sara was a 17-year-old female with profound mental retardation who exhibited severe self-injury. She had no recognizable communication skills. Bud was a 12-year-old boy with severe mental retardation, autism, and ADHD whose behavior problems included aggression, disruption, self-injury, elopement, and screaming. Bud's verbal responses consisted of a few non-functional echolalic statements. Otherwise, he inconsistently communicated his wants and needs by pointing or grabbing. Paul was a 16-year-old male with profound mental retardation and Down syndrome whose behavior problems included aggression and property destruction. He had no verbal communication skills but would occasionally point at a desired object.

All 6 clients participated in Phase 1 of this study; 5 of them (Cher, Monro, Alec, Sara, and Bud) took part in Phase 2. Reinforcers were identified for the clients in the study so that we could develop differential reinforcement procedures (e.g., differential reinforcement of alternative behavior [DRA]) to increase clients' appropriate behavior and decrease their destructive behavior. The combination of the severe and profound levels of mental retardation, severe communication deficits, and the frequency and intensity of client problem behaviors contributed to the difficulties in identifying reinforcers for these individuals.

Primary caregivers of each of the clients also participated in the investigation. The primary caregiver was the person identified as assuming the care and supervision of the client throughout the day prior to the client's admission to the hospital. The primary caregivers in the present investigation were the clients' mothers, except for Sarah. Sarah had lived exclusively with her grandmother since age 3. All mothers were the biological parent of the child, with the exception of Alec's mother. She had been his foster mother for 3 years and had known him for 2 years prior to becoming his foster mother.

DATA COLLECTION AND RELIABILITY

All sessions were conducted in individual treatment rooms (approximately 3 m × 3 m) equipped with one-way mirrors. Trained observers recorded client responses while seated either behind the mirror or in the room with the client.

During the choice assessments conducted during Phase 1, trained observers recorded each time the client approached presented stimuli. Approach responses were defined as the client moving toward the presented stimulus with any part of his or her body within 5 seconds of stimulus presentation (Pace et al., 1985). For example, client approach responses included the client making eye contact with the stimulus (i.e., moving eyes toward the stimulus), reaching for the stimulus with his or her arm or hand, pointing at the stimulus, or turning his or her head or body toward the stimulus. On an average of 91.8% of trials across clients (range = 61.9% to 100%), a second independent observer also recorded approach responses. Occurrence agreement was defined as both observers agreeing that the client approached the presented stimulus. A nonoccurrence agreement was defined as both observers agreeing that the client did not approach the stimulus. Occurrence, nonoccurrence, and total agreement coefficients were calculated by dividing the number of agreements by the sum of agreements plus disagreements and multiplying by 100%. The average agreement coefficients for approach responses across clients were (a) occurrence, 96% (range = 85.9% to 100%); (b) nonoccurrence, 96.9% (range = 85% to 100%); and (c) total, 98.3% (range = 92.2% to 100%).

The dependent measures used during Phase 2, reinforcer assessment, were identical to those used by Fisher et al. (1992). For Monro and Cher, two squares (0.7 m × 0.7 m) were drawn on the floor with tape. Trained observers used laptop computers to record total duration of in-square behavior, which was defined as the client having any portion of his or her body in the square. For Alec, Sara, and Bud, two chairs were in the room, and trained observers recorded duration of in-seat behavior. In-seat was defined as contact of buttocks to the chair. A second independent observer recorded duration of in-square or in-seat behavior on 63.7% (range = 55% to 75.7%) of sessions across clients. Exact interval-by-interval agreement coefficients were calculated for duration of in-square or in-seat behavior by dividing the number of agreements by the sum of agreements and disagreements, and then multiplying by 100%. An agreement was defined as a 10-second interval during which both observers recorded the same duration (in seconds) of the target behavior. In Phase 2, the average exact-agreement coefficient across clients was 96% (range = 91.5% to 99.3%).

DESIGN

During the reinforcer assessment, a reversal design (ABAB) was used to compare the effects of two types of potential reinforcers (i.e., standard vs. caregiver stimuli). The A phase was baseline, in which engaging in the target behavior resulted in no differential consequence. The B phase was a concurrent operants procedure, in which two operants (i.e., sitting in chair A vs. sitting in chair B) were associated with different consequences (e.g., sitting in chair A resulted in access to a standard stimulus and sitting in chair B resulted in access to a caregiver stimulus).

PROCEDURE

Phase 1. In Phase 1 caregivers were interviewed. First, the standard stimuli used in the Fisher et al. (1992) and Pace et al. (1985) investigations were described to the caregiver. The stimuli were a mirror, a flashlight, taped music, a beeper, coffee grounds, hibiscus, juice, a cracker, a vibrator, a fan, a heating pad, an ice pack, a rocking chair, a swivel chair, a therapist clapping, and a hug from the therapist. Caregivers were asked to rank order stimuli from the standard list according to expected client preference.

Next, a structured interview was conducted using the Reinforcer Assessment for Individuals with Severe Disabilities. In this interview, caregivers were asked to generate a list of child-preferred stimuli with the general domains of visual, audible, olfactory, edible, social, tactile, and toys used as guidelines. (A copy of this interview format is available from the authors upon request.) Caregivers were not required to generate stimuli within each domain; the major goal was to facilitate the identification of as many potential reinforcers as possible. Caregivers were asked not only to identify specific preferred stimuli but also to describe the conditions under which those stimuli were preferred (e.g., smooth peanut butter on lightly toasted bread, watching the television show the "Price is Right" while wearing an Orioles baseball cap). Because the stimuli were being identified for use in increasing client's appropriate behavior and reducing high rate, destructive behavior, one limitation imposed on the caregiver-generated list was that the stimuli had to be ones that could be easily delivered in a differential reinforcement procedure (e.g., DRA). That is, in order to be clinically useful, the reinforcers needed to be delivered immediately and on a dense schedule (e.g., Poling & Ryan, 1982). Therefore, stimuli that could not be delivered in a classroom or living environment (e.g., a pony ride) were not included. After caregivers had generated a list of child-preferred stimuli using the Reinforcer Assessment for Individuals with Severe Disabilities, they were asked to rank order the stimuli according to the predicted preference for their child. The rankings were independent of the domains (i.e., more than one stimulus from a domain could appear in the rankings). (The specific list of stimuli generated by the caregiver for each client is available from the authors upon request.)

Subsequent to the caregiver interviews, two choice assessments were conducted with each of the six clients. The first choice assessment consisted of the 16 standard stimuli used by Fisher et al. (1992) and Pace et al. (1985) that were described previously. The second choice assessment consisted of the top 16 stimuli generated by the Reinforcer Assessment for Individuals with Severe Disabilities (i.e., the 16 stimuli predicted to be most preferred by the client based on caregiver rankings and presented exactly as described by the caregiver).

The procedure used for conducting the choice assessments was identical to that used by Fisher et al. (1992). During the choice assessment with standard stimuli, each of the 16 standard stimuli was paired once with every other standard stimulus in a randomized order for a total of 120 paired presentations. During the choice assessment with caregiver stimuli, each of the 16 caregiver stimuli was paired once with every other caregiver stimulus in a randomized order for a total of 120 pair presentations. During each pair presentation, the stimuli were placed 0.7 m

apart and approximately 0.7 m in front of the client. Because stimuli were represented from a variety of categories (e.g., edible, tangible, activity, social), stimulus presentation was defined according to the idiosyncratic properties that seemed to most clearly define the stimulus. For example, presentation of "clapping" would consist of a therapist clapping for 5 seconds. Presentation of a food item would consist of holding the food item in front of the client. Presentation of a beep would consist of the therapist activating a timer that made a beeping sound for 5 seconds. Client approach responses to one of the stimuli resulted in 5-second access to that stimulus and removal of the other stimulus. Simultaneous approach to both stimuli (e.g., reaching for both stimuli) was blocked by the therapist. If no approach response was made, the therapist prompted the client to sample both of the stimuli. Sampling was accomplished by presenting the stimulus to the client (e.g., giving the client a ball, hugging the client). The two stimuli were then re-presented for an additional 5 seconds, and approach responses resulted in 5-second access to the chosen stimuli. If no response was made, the stimuli were removed, and the next pair of stimuli were presented. This procedure was repeated for every pair of stimuli until all stimulus-pair presentations were completed. An entire choice assessment with 16 stimuli took approximately 1 hour to complete. The two assessments (i.e., standard and caregiver) were completed on different days to minimize carryover effects between the two choice assessments.

Phase 2. During Phase 2, a reinforcer assessment was conducted using a concurrent operants paradigm in which the top stimulus (i.e., the stimulus approached most frequently) from the standard choice assessment was compared with the top stimulus from the caregiver choice assessment. The reinforcer assessment consisted of a baseline phase, followed by a concurrent operants phase, followed by a return to baseline phase, followed by a return to concurrent operants phase. The dependent measures used during reinforcer assessment were identical to those used by Fisher et al. (1992). Standing in squares was used as the dependent measure for the 2 clients who actively resisted sitting in chairs, and sitting in chairs was used for the 3 clients who would sit for high- but not low-preference activities. The squares or chairs were present throughout the baseline, concurrent operants, return to baseline, and return to concurrent operants phases. Each session during baseline and concurrent operants phases was 10 minutes in length.

During baseline the client and therapist were alone in a room with no stimuli or activities present except the two empty squares drawn on the floor (for Cher and Monro) or two empty chairs (for Alec, Sara, and Bud). If the client stood in the square or sat in the chair, no differential consequence was provided by the therapist.

Subsequent to baseline and prior to the concurrent operants phase, training trials were conducted to teach the client to gain access to the stimuli (i.e., caregiver or standard) being assessed. A training trial consisted of placing the stimulus in a square or chair, and then allowing the child 5 seconds to independently engage in the target behavior (in-square or in-seat). The type of stimulus (i.e., caregiver or standard) was randomized across training trials. If the child failed to engage in the target behavior, sequential verbal, gestural, and physical prompts were used. When the child stood in the square or sat in the chair, access to the stimulus was provided immediately. The trial ended and a new trial began when the child left the square or chair or approximately 10 seconds elapsed. If the 10-second criterion elapsed, the child was physically guided out of the square or chair. Training trials were conducted in blocks of 10 trials. Training ended when the child independently engaged in the target behavior for 80% of three consecutive blocks of 10 trials.

After training trials were completed, we conducted a concurrent operants phase to assess the

reinforcing potency of the two sets of stimuli (i.e., caregiver vs. standard). Sessions during the concurrent operants phase were identical to baseline except that one stimulus (i.e., either the most preferred caregiver stimulus or the most preferred standard stimulus) was placed in each of the squares or next to each of the chairs (i.e., the standard stimulus was associated with one square or chair, and the caregiver stimulus was associated with the other square or chair). When the client stood in a square or sat in a chair, he or she gained 10 seconds of access to the stimulus associated with that square or chair (i.e., either the standard or caregiver stimulus). The stimulus was removed if the client left the square or chair. Even though the stimuli associated with the squares and chairs were identical, during each session the stimulus-square or stimulus-chair relation was randomly assigned to control for any effects that might be associated with a square or chair (e.g., left/right orientation).

RESULTS

Caregiver rankings of expected client preferences were compared with the results of the choice assessments using a randomization test (Edgington, 1987). Randomization tests have been recommended for use with single-case designs because they do not require random sampling and assignment of subjects (Edgington, 1987). In this study, each of the 6 caregivers rank-ordered the 16 standard stimuli according to predicted client preference. Then, a stimulus choice assessment was completed to measure actual client preferences. Finally, a rank-order correlation coefficient was calculated between the caregiver rankings (i.e., predicted client preferences) and the results of the stimulus choice assessment (i.e., actual client preferences), and a randomization test was completed to test the significance of the coefficient (Edgington, 1987). These same steps (i.e., caregiver rankings, a choice assessment, and calculating a rank-order correlation coefficient) were completed with the 16 stimuli generated by the caregivers using the Reinforcer Assessment for Individuals with Severe Disabilities. The correlation between caregiver rankings and the results of the choice assessment was not significant for the standard stimuli, $r = .19$, but was significant for the caregiver stimuli, $r = .32$, $p < .005$.

The results of the reinforcer assessment are depicted in Figures 1 and 2. During the initial baseline, the duration of in-square or in-seat behavior averaged less than 10% of session time for all clients. The duration of in-square or inseat behavior increased for all clients during the concurrent operants phases when these behaviors resulted in access to the most preferred stimuli from the caregiver-generated list. Following a return to baseline, Cher consistently selected the caregiver item in the second concurrent operants phase. Monro and Sara demonstrated clear preferences for the caregiver item in both phases. Alec demonstrated clear preference for the caregiver item in the first concurrent operants phase. However, following a return to baseline, Alec demonstrated little choice responding in the second concurrent operants phase until Session 33, when he began to consistently select the caregiver item. Bud also demonstrated consistent selection of the caregiver item in the first concurrent operants phase but showed slightly more variability in the second concurrent operants phase.

DISCUSSION

In the current investigation, when caregivers were asked to rank order a standard list of potential reinforcers in terms of client preferences, agreement between predicted and actual preference was low and not statistically significant. However, when caregivers were asked to rank order a list of potential reinforcers that they had generated through a structured interview, the Reinforcer Assessment for Individuals with Severe Disabilities, the level of agreement with a choice assessment was low but statistically significant. In addition, during a subsequent

reinforcer assessment, stimuli identified from the choice assessment and caregiver interview were more potent reinforcers than were stimuli identified from the choice assessment with the standard stimuli previously used by Pace et al. (1985) and Fisher et al. (1992).

It is clear from the results of this investigation and previous studies (e.g., Green et al., 1988; Green et al., 1991) that caregiver report, when used to rank a standard set of stimuli, is not a very accurate method of identifying reinforcers. That is, Green et al. (1988, 1991) asked caregivers to rank a standard set of stimuli and found that stimuli nominated as high preference by caregivers but not frequently chosen on a preference assessment were not functional reinforcers. In the current investigation, the correlation between caregiver rankings on standard stimuli was low and not significant.

One factor that may affect caregiver accuracy is the extent to which the caregivers are familiar with the stimuli they are asked to rank. Caregivers in the current investigation were slightly more accurate in predicting client preference for stimuli generated from the Reinforcer Assessment for Individuals with Severe Disabilities. It is highly probable that caregivers had more opportunities to observe clients interact with caregiver stimuli (e.g., child's favorite toy) than with the standard stimuli (e.g., hibiscus, vibrating pillow). Although the correlation between caregiver rankings and the choice assessment was statistically significant for the caregiver stimuli, the clinical significance of the correlation would generally be considered poor (Cicchetti & Sparrow, 1981), thus providing further evidence that caregiver opinion alone is insufficient for accurate reinforcer identification.

These results suggest, however, that caregiver opinion can contribute significantly to reinforcer identification when combined with the results of a structured interview and a choice assessment. In the current investigation, caregiver stimuli (i.e., stimuli generated from the Reinforcer Assessment for Individuals with Severe Disabilities and a subsequent choice assessment) were more potent reinforcers than stimuli identified through a choice assessment using a standard list. Future investigators may wish to examine other methods of enhancing the accuracy of caregiver information, as caregiver report remains one of the most commonly used assessment strategies.

The Reinforcer Assessment for Individuals with Severe Disabilities may facilitate identification of potential reinforcers by providing cues or prompts to caregivers that enable them to generate a list of potentially reinforcing stimuli. The techniques used with the Reinforcer Assessment for Individuals with Severe Disabilities are similar to those employed when interviewing caregivers for the purpose of operationally defining target responses (Haynes, 1978). With the Reinforcer Assessment for Individuals with Severe Disabilities, however, the goal is to help the caregiver describe potential reinforcing stimuli and activities in clear, explicit terms. In addition, the interview is structured so that the caregiver is asked to identify potential reinforcers from a broad array of areas (e.g., edibles, visual stimulation, gross-motor activities). Thus, the list of stimuli generated may be more comprehensive than one generated using a more open-ended interview and more individualized than that obtained when a standard set of stimuli are used. Finally, the Reinforcer Assessment for Individuals with Severe Disabilities is a fairly efficient method of identifying potential reinforcers because the interview takes only approximately 15 to 20 minutes to complete.

Results of the present investigation further illustrate the advantage of the concurrent operants paradigm as a method of rapidly differentiating the relative potency of two or more potential reinforcers (Fisher et al., 1992). The primary advantage of a concurrent operants paradigm is that the relative response rates for the two operants tend to match the reinforcer

density associated with each operant, thus providing an accurate method of assessing relative preferences for various schedules (or types) of reinforcement (Catania, 1963; Fisher et al., 1992). In the current investigation and in Fisher et al., continuous reinforcement schedules were used to facilitate rapid differentiation between reinforcers because the contingencies in effect tend to be easy to discriminate (relative to intermittent reinforcement schedules).

One limitation of the current investigation was that client preference was assessed only at one point in time. No attempt was made to conduct ongoing assessments of preference; thus, the generalizability of the results across time may be limited. Preferences for stimuli may vary not only across individuals, but also within individuals. Variations in the relative potency of one or more stimuli to function as reinforcers may be momentary or occur for more extended periods of time, and such changes are difficult to predict from a single preference assessment conducted at one point in time.

Some clients in the current investigation (i.e., Cher, Monro, and Bud) showed variability in the relative potency of the two types of high preference stimuli assessed during the concurrent operants phases of the investigation. That is, they emitted more of the response associated with the caregiver-generated stimulus most, but not all of the time. Mason, McGee, Farmer-Dougan, and Risley (1989) have suggested that ongoing assessment of client preferences may be important in maintenance of client behavior over time. In addition, Egel (1981) has demonstrated that varied reinforcement resulted in greater maintenance of responding over time than did single reinforcers, perhaps due, in part, to the fact that client preferences can vary over time. In our clinical practice we address the issues of stability of client preference and reinforcer variation by (a) using the choice assessment to identify the top three or four most highly preferred stimuli for each client and (b) conducting "mini-assessments" similar to the one described by Mason et al. at critical time intervals (e.g., every hour, prior to session), thus allowing the client to choose between the top stimuli. Future investigators may find it useful to conduct choice assessments at various time intervals to better determine the stability of client preference.

A second limitation of the current investigation is that only a relatively narrow range of stimuli was evaluated. Our objective was comparison of a standard list of stimuli to stimuli generated from caregiver report based on a structured interview, the Reinforcer Assessment for Individuals with Severe Disabilities. Future investigators might compare the results of a choice assessment using caregiver stimuli with the results of a choice assessment using a broader range of stimuli. It also might be useful to compare the procedures found most effective in the current investigation (i.e., choice assessment using stimuli generated from the Reinforcer Assessment for Individuals with Severe Disabilities) with stimuli generated from other methods (e.g., direct observation of client behavior in a free-operant situation) to evaluate the generality of the findings from the current investigation.

Finally, although stimuli identified through caregiver report were demonstrated to be more potent reinforcers than were stimuli chosen from a standard list, standard stimuli may continue to be useful in some situations. We have found that some caregivers have difficulty generating more than a few stimuli even when using a structured interview. Others are able to generate a substantial number of stimuli, but the stimuli are not practical for frequent use as reinforcers (e.g., in dense differential reinforcement of other behavior schedules) due to their availability, portability, or difficulty in delivering them immediately. Finally, standard stimuli may be useful when caregivers have limited familiarity with client preference (e.g., the client has just moved into residence).

Added material

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Figure 1. The percentage of time Cher and Monro engaged in in-square behavior during baseline and during concurrent operants conditions.

Figure 2. The percentage of time Alec, Sara, and Bud engaged in in-seat behavior during baseline and concurrent operants conditions.

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