Michigan Autism Training Video Treatment Manual:

Stimulus Preference Assessments

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Suggested Reference

Stimulus Preference Assessments

TABLE OF CONTENTS

A. Brief Description of Stimulus Preference Assessments ............................................ 3

B. Purpose and Appropriate Use of Preference Assessment ........................................... 3
   B. 1. Indirect Preference Assessments ................................................................. 3
   B. 2. Single-Stimulus Preference Assessment ....................................................... 3
   B. 3. Paired-Stimulus Preference Assessment ....................................................... 4
   B. 4. Multiple Stimulus without Replacement Preference Assessment .................... 4
   B. 5. Free-Operant Preference Assessment .......................................................... 5

C. Applicability ........................................................................................................... 5

D. Treatment Validity and Treatment Matching ........................................................ 5

E. Recommended Personnel and the Role of Caregivers ............................................. 9

F. Challenges and Troubleshooting .......................................................................... 9

G. Task Analyses and Other Materials .................................................................... 10

H. References ........................................................................................................... 20
Stimulus Preference Assessments

A. Brief Description of Stimulus Preference Assessments

Instructional and therapeutic programs for learners with autism spectrum disorder and other neurodevelopmental disorders often rely on the careful arrangement of reinforcement contingencies. A critical part of these arrangements is the use of effective reinforcers. Stimulus preference assessments and reinforcer assessments are procedures devised by behavioral researchers to identify preferred stimuli, with the assumption that higher preference stimuli are more effective reinforcers. This assumption has been validated in numerous studies. Behavioral researchers have evaluated a number of methods for identifying stimulus preferences. The methods vary along many dimensions, including the effort required on the part of the learner and therapist, the stimulus presentation format, and how the assessment is scored.

B. Purpose and Appropriate Use of Stimulus Preference Assessments

Preference assessments are used in anticipation of arranging programmed reinforcement systems, primarily for learners with intellectual and developmental disabilities or other individuals that otherwise have difficulty expressing meaningful preferences.

B. 1. Indirect Preference Assessments

Before the development of formal preference assessment methods, clinicians often relied on staff or parent surveys, checklists, and related methods sometimes collectively termed indirect preference assessments. Although indirect assessments are relatively simple and require little effort, their outcomes do not always correspond with the outcomes of more rigorous assessments (Cote, Thompson, Hanley, & McKerchar, 2007; Windsor, Piche, & Locke, 1994). Nevertheless, indirect assessments are useful in identifying the stimuli to be included in more systematic preference assessments. Appendix A contains one of the more common indirect assessments, the Reinforcer Assessment for Individuals with Severe Disabilities, or RAISD (Fisher, Piazza, Bowman, & Amari, 1996). Instructions for its use are embedded in the document.

B. 2. Single-Stimulus Preference Assessment

Pace, Ivancic, Edwards, Iwata, and Page (1985) used a single-stimulus (SS) presentation format to assess preferences for 16 stimuli for six individuals with intellectual and developmental disabilities. Items thought to produce different forms of stimulation were included. During each trial, one item was placed in front of the participant and approach responses (i.e., moving hand or body toward the item within 5 s of presentation) were recorded. Preference hierarchies were established by calculating the percentage of approach responses for each stimulus. During a subsequent reinforcer assessment, the effectiveness of high-preference stimuli (those approached on 80% or greater of trials)
and low-preference stimuli (items approached on 50% or fewer of trials) were compared. High-preference stimuli generally were more likely to function as reinforcers than low-preference stimuli. Appendix C presents instructions for conducting a single-stimulus preference assessment.

**B. 3. Paired-Stimulus Preference Assessment**

The SS preference assessment was an efficient method for directly measuring the preferences of individuals with severe learning deficits. One drawback, however, was that some participants approached all or most of stimuli presented. This pattern of indiscriminate selection implied that all stimuli were equally preferred. Alternatively, participant learning histories and subtle demand features of the SS preference assessment may have evoked approach responding regardless of the specific item presented. Thus, SS assessments may not yield sufficient information on relative preferences, causing clinicians to select some non-preferred stimuli as reinforcers.

To address the possibility of false-positive findings, Fisher et al. (1992) developed a paired-stimulus (PS) assessment. In this method, two items are presented simultaneously and the learner chooses one during each trial. This variation ensures that not all stimuli would be selected during 100% of trials, thus enhancing the likelihood of generating a differentiated preference hierarchy. In Fisher et al.’s comparison of the SS and PS methods, all items determined to be of high preference (selected on 80% or greater of trials) in the PS assessment were also identified as high preference in the SS assessment. However, items classified as moderate (50%-79%) to low (50% or below) preference in the PS assessment were also frequently classified as high-preference stimuli in the SS assessment. Thus, the PS assessment generated more differentiated preference hierarchies than the SS assessment. During subsequent reinforcer assessments, stimuli determined to be highly preferred during both types of preference assessments supported higher rates of responding than stimuli identified as highly preferred during the SS assessment but low to moderately preferred in the PS assessment. These findings suggest that the PS assessment may offer a more accurate measure of relative preference than the SS assessment. Appendix D presents instructions for conducting a paired-stimulus preference assessment.

**B. 4. Multiple Stimulus without Replacement Preference Assessment (commonly called MSWO)**

DeLeon and Iwata (1996) developed the MSWO as an assessment method that required less time to implement than a PS assessment while still producing a differentiated preference hierarchy. At the start of each session, the clinician sits across a table from a participant and places stimuli in a line approximately 5 cm apart and 0.3 m in front of the participant. The clinician then instructs the participant to approach one item. After the participant approaches one item, he or she is allowed to consume or play with that item.
During the next trial, the selected stimulus is removed from the array and the remaining items are again laid out in front of the participant. Trials continue in this manner until the last item is approached, or the participant does not approach any of the remaining items within 30 seconds. In the original study, this preparation was repeated 5 times, after which a preference hierarchy was developed by dividing the number of time each item was chosen by the number of trials it was available. The researchers found that PS and MSWO methods generated similar preference hierarchies, but the MSWO assessment required fewer trials. Other researchers later determined that similar outcomes can be produced with fewer than 5 repetitions (e.g., Carr, Nicolson, & Higbee, 2000), further shortening the length of an assessment that produced valid outcomes. Appendix E presents instructions for conducting a MSWO preference assessment.

B. 5. Free-Operant Preference Assessment

Although most preference assessment procedures measure stimulus selections across a series of trials, Roane, Vollmer, Ringdahl, and Marcus (1998) developed a brief free-operant (FO) preference assessment in which relative preference is based on the duration of item engagement. The authors suggested this approach was quick to administer, allowing for more frequent assessments. Furthermore, stimuli are never withheld or withdrawn, which might be beneficial for learners that display problem behavior evoked by the removal of preferred items. The FO may also better accommodate assessment of larger items that cannot be presented on the tabletop. During the FO assessment, sessions were 5 minutes in duration. Items were placed in a circle on the tabletop, and participants were free to engage with any of the items during that period. Object manipulation was measured using 10-s partial interval recording. Preference hierarchies were established by ranking items according to the percentage of intervals in which object manipulation occurred. A brief concurrent-schedule reinforcer assessment revealed that stimuli engaged for the highest durations were more likely to serve as reinforcers than those rarely engaged. However, when compared to results obtained from a PS assessment, the FO assessment was less likely to generate a distinct preference hierarchy (i.e., identification of at least one high-preference stimulus and at least one relatively less-preferred stimulus). However, the FO assessment was faster to administer and was associated with less problem behavior. Appendix F presents instructions for conducting a FO preference assessment.

C. Applicability

Most uses have involved learners with intellectual and developmental disabilities, particularly those with limited vocal skills who could not express their preferences vocally. However, other individuals with intact vocal repertoires may not always be the best at specifying what would be the most effective reinforcer for them, so the procedures have been adopted for other clinical populations (e.g., patients with dementia).
D. Treatment Validity and Treatment Matching

Conducting a preference assessment is a formal method of identifying preferred stimuli, which have the potential to function as reinforcers when delivered during programmed reinforcement systems. As preferences may change over time, it is recommended that preference assessments be conducted on a regular basis to ensure that highly preferred stimuli are delivered as reinforcers. However, preference of a stimulus does not guarantee that stimulus will function as a reinforcer. If programmed reinforcement systems (using stimuli identified as preferred via a preference assessment) are not having the anticipated effect, it may be necessary to conduct a reinforcer assessment to directly assess the extent to which stimuli function as reinforcers.

Reinforcer assessments. Behavioral researchers have used a number of different methods to assess the effectiveness of reinforcers. The most common involves a simple fixed-ratio schedule; sometimes referred to as a single-operant arrangement in this context. A single reinforcement schedule is arranged for a single response and the rate or frequency of responding is used to evaluate the relative potency of reinforcers (e.g. Carr, Nicolson, & Higbee, 2000; Roscoe, Iwata, & Kahng, 1999). Response rates during the reinforcement phase are compared to response rates during a baseline (no reinforcement) phase; reinforcers are those stimuli that increase responding relative to baseline levels. In theory, the larger the increase in responding, the more potent the reinforcer.

However, response rate is perhaps a poor index of relative reinforcer value because variables other than the strength of the reinforcer (e.g. natural limits on the rate of responding or “ceiling effects”) can have a greater influence over response rate than relative reinforcer efficacy. Thus, single FR schedules using response rate as a dependent variable may mask differences in relative reinforcer efficacy (e.g., Roscoe et al., 1999). Although such differences may be small, there are nonetheless conditions under which even small differences in relative reinforcer value may be clinically important.

Concurrent-schedule arrangements offer a more sensitive test of relative reinforcer effectiveness. In a concurrent-schedule, the participant can distribute responses between different options that operate simultaneously. The dependent variable of greatest interest is the distribution of responses (e.g., Piazza, Fisher, Hagopian, Bowman, & Toole, 1996; Roscoe et al., 1999). For example, a child may have two identical sheets of arithmetic problems placed side-by-side in front of them. Completion of problems on the right side may result in the delivery of one reinforcer according to an FR1 schedule, whereas completion of problems on the left side results in delivery of a second reinforcer on an identical schedule. All else being equal, if the child allocates more responding towards the option associated with the first reinforcer than the option associated with the second reinforcer, the first is deemed more effective.

Concurrent schedules may be sensitive to small differences in reinforcer value. However, it is important to note that just because a reinforcer is less preferred in a concurrent-schedule
arrangement, it may nonetheless be an effective reinforcer in an absolute sense (i.e. if it wasn’t being directly pitted against another stimulus; see Roscoe et al.).

Applied researchers have also used progressive-ratio (PR) schedule arrangements (Hodos, 1961) to assess relative reinforcer efficacy (e.g., DeLeon, Frank, Gregory, & Allman, 2009; Francisco, Borrero, & Sy, 2008; Roane, Lerman, & Vorndran, 2001). PR schedules are another example of a single-operant arrangement, but differ from typical single-operant arrangements with respect to how the schedule is thinned. In typical single-operant arrangements, the response requirement within a session (e.g. FR1) is typically held constant. Under a PR schedule, the response requirement increases systematically within a session (e.g., may increase in increments of 2 from FR 2 to FR 4, to FR 6, etc. within the same session). A session ends when the participant ceases to respond for some pre-determined amount of time. Reinforcer value is indexed by the breakpoint, or the value of the last completed schedule. Thus, PR schedules provide an estimate of the amount of responding one is willing to emit towards gaining a reinforcer.

All direct preference assessment methods require intact skills for making valid selections. It is therefore important for clinicians to consider prerequisite skills specific to each type of assessment when selecting a method. Many preference assessments require participants to approach or interact with stimuli, thus requiring intact visual and motor skills. For example, PS and MSWO preference assessments require that an individual visually scan two or more simultaneously presented stimuli in order to make a choice and SS, PS, and MSWO preference assessments all require some type of physical (e.g., reaching for an item, leaning towards an item) or vocal (i.e., saying the name of the item) response.

Individuals with profound disabilities who do not possess prerequisite scanning and motor skills will not be able to participate in traditional preference assessments. However, the preferences of individuals with restricted motor movements may be assessed using microswitches (e.g., Datillo, 1986; Gutierrez-Griep, 1984; Wacker, Berg, Wiggins, Muldoon, & Cavanaugh, 1985). Wacker et al. (1985) trained individuals with profound disabilities to emit small motor movements, such as lifting their head, or raising their arm, to access various items (toys, music, etc.). Microswitches were attached to various body parts, and the number and duration of motor movements were measured. Other researchers have suggested that indices of happiness (smiling, laughing, etc.) may be differentially correlated with preferred stimuli (Green & Reid, 1996). Thus, by presenting a series of stimuli and measuring behaviors that evoke the label “happiness,” it may be possible to identify preferred stimuli for individuals lacking the motor skills to approach stimuli.

The role of visual scanning has not been evaluated in the context of preference assessments, but other lines of research suggest that selection responses made without the individual observing all stimuli results in impaired accuracy of delayed match-to-sample performance (Dube et al., 1999). If this were to occur in the context of a preference assessment, established preference hierarchies may not be accurate. Thus, if an individual has the ability to look at and reach or
Clinicians may sometimes need to evaluate preferences for complex stimuli (e.g., community activities) that can be offered only through verbal or pictorial representations of the activities. A number of studies have attempted to identify the skills necessary for successful assessments of this sort (Clevenger & Graff, 2005; Cohen-Almeida et al., 2000; Conyers et al., 2002; Reyer & Sturmey, 2006). For example, Conyers et al. used the Assessment of Basic Learning Abilities test (ABLA; Kerr, Meyerson & Flora, 1977) to assess prerequisite skills for pictorial and verbal PAs. The ABLA test includes several levels, hierarchically ordered in terms of increasing difficulty. The skills assessed range from basic imitation (Level 1), to visual matching-to-sample (Level 4), to auditory match-to-sample (Level 6). Preference hierarchies generated by the tangible assessment did not match those generated by the pictorial or verbal assessments for participants who only passed up to Level 3 of the ABLA. For participants with basic visual matching skills (Level 4), preference hierarchies from the tangible assessments matched the pictorial assessment results, but not the verbal assessment. Finally, the participants who passed all visual and auditory tests generated similar preference hierarchies across pictorial, verbal, and tangible assessment methods. These data suggest that individuals must have specific matching skills in their repertoires in order for pictorial and verbal assessments to produce valid outcomes.

Several other factors should be considered in selecting a preference assessment method. For example, if time is of issue, then the FO, SS, or MSWO preference assessments may be more appropriate than the PS assessment. As noted by Fisher et al. (1992), although the PS assessment may be an effective method to identify preferences, it takes more time to implement than the SS assessment. Furthermore, the MSWO method (DeLeon & Iwata, 1996) was partially proposed as an assessment that required less time to implement than a PS assessment. DeLeon and Iwata (1996) found that PS and MSWO methods generated similar preference hierarchies, but the MSWO assessment required fewer trials and was completed in approximately half the time that it took to complete the PS assessment. Although the MSWO proved to be an effective and efficient method, fewer stimuli can be simultaneously assessed on a tabletop with the MSWO compared to what can be included in the PS assessment. Therefore, if one wishes to include a large number of stimuli and has ample time to complete the assessment, the PS assessment may be preferable.

In an analysis of the interaction between problem behavior maintained by different reinforcers and different types of preference assessments, Kang et al. (2011) found that individuals with problem behavior maintained by tangible reinforcers were likely to display problem behavior during MSWO and PS assessments, but not during the FO assessment. However, the FO assessment tended to evoke problem behavior maintained by attention. Thus, when working with individuals who engage in socially maintained problem behavior, the function of problem behavior should be taken into consideration when selecting a preference assessment method.

During preference assessments, selection responses typically result in the opportunity for a participant to consume the chosen item. Under some circumstances, it may not be practical to
deliver an item immediately following a selection response (e.g., when assessing preferences for community-based items or items that cannot be presented on the tabletop). Delays between the selection response and the delivery of the corresponding item may influence the results (e.g., Groskreutz & Graff, 2009; Hanley, Iwata, & Lindberg, 1999; Kuhn, DeLeon, Terlonge, & Goysovich, 2006; Tessing, Napolitano, McAdam, DiCesare, & Axelrod, 2006). Hanley et al. (1999) evaluated the preferences of 4 individuals with severe developmental disabilities using pictures. During each assessment trial, three pictures were presented simultaneously to participants. Two pictures represented potential reinforcers and a control picture represented a presumably neutral activity. A multiple baseline design across stimulus sets was used to evaluate the effects of contingent access to stimuli on preference assessment outcomes. Two experimental conditions were included in the evaluation. In the no access condition, touching a picture did not produce programmed consequences. In the access condition, a touch response resulted in immediate access to the associated activity area for 2 min. In most cases, differentiated preference hierarchies were established only when selected items were immediately delivered following approach responses.

E. Recommended Personnel and the Role of Caregivers

Prior to the assessment, BCBAs or BCaBAs (under the supervision of BCBAs) may consider conducting structured interviews with parents/caretakers to assist in identifying stimuli to include in the assessment. One example is the Reinforcement Assessment for Individuals with Severe Disabilities (RAISD; Fisher, Piazza, Bowman, & Amari, 1996). See Appendix A.

After stimuli have been identified for inclusion, BCBAs (or BCaBAs under supervision) are qualified to supervise and train Registered Behavioral Technicians to design and conduct preference assessments.

BCBAs may also train parents/caretakers to conduct preference assessments at home. As parents often have the best perspective of their child’s learning history and needs, their participation is integral to a comprehensive, effective program. The intensity of behavioral intervention (e.g., 30-40 hours per week in a one-to-one context) is directly related to the most significant improvements in outcomes, and ideally, a portion of the program will target daily routines in the home that develop into teaching opportunities. Training caretakers to conduct systematic preference assessments may be beneficial, whether the focus is on learning to apply instructional methods or managing problem behavior.

F. Challenges and Troubleshooting

Some individuals have difficulty making selections from an array of stimuli, particularly when first exposed to these types of assessments. This can be a challenge when conducting the PS or MSWO procedures. If an individual attempts to reach for multiple items, it is recommended to block the response by removing the array of items, then representing the array after 10 seconds with the instruction to, “Choose one.”
Additionally, some individuals may make selections controlled by location rather than by the items themselves (e.g., always selecting the item closer to the dominant hand when two items are presented in the PS assessment). Sometimes, positional biases may be overridden through choice training. For example, Bourret, Iwata, Harper, and North (2012) were able to overcome positional biases for 3 individuals by conducting training in which a choice was provided between a known non-preferred stimulus and the other stimuli used in the original PA. For two other participants, increasing the magnitude of one of the items presented along with an error correction procedure helped to overcome the bias. In the absence of such extensive training, simpler tactics that sometimes prove useful include changing from horizontal to vertical placement of stimuli, taking one item in each hand and holding them in front of the participant, or placing items in opposite corners of a room and having the participant walk to the selected item.

When multiple selections or position biases persist, it may be necessary to assess preferences using the SS or FO procedures—methods that do not involve making a choice.

G. Task Analyses and Other Materials

- Appendix A: Reinforcement Assessment for Individuals with Severe Disabilities (RAISD)
- Appendix B: Operational definitions for data collection, to be individualized for each child
- Appendix C: Single-stimulus (SS) preference assessment
- Appendix D: Paired-stimulus (PS) preference assessment
- Appendix E: Multiple stimulus without replacement (MSWO) preference assessment
- Appendix F: Free-operant (FO) preference assessment
Appendix A

REINFORCEMENT ASSESSMENT FOR INDIVIDUALS WITH SEVERE DISABILITIES
(Fisher, Piazza, Bowman, & Amari, 1996)

NAME__________________ DATE_____________

REPORTER___________________________

RELATION OF REPORTER_______________________________________________________

The purpose of this structured interview is to get as specific information as possible from the parent (or caregiver) as to what they believe would be useful reinforcers for the client. After the parent has generated a list of preferred visual stimuli, ask additional probe questions to get more specific information on the reinforcer and the stimulus conditions under which the object or activity is most preferred (e.g., What specific TV shows are his favorite? What does she do when she plays with a mirror? Does she prefer to do this alone or with another person?).

We would like to get some information on ______________ preferences for different items and activities.

1. Some children really enjoy looking at things such as a mirror, bright lights, shiny objects, spinning objects, TV, etc. What are the things you think ______________ most likes to watch?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Response to Probe Questions:

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

2. Some children really enjoy different sounds such as listening to music, car sounds, whistles, beep, sirens, clapping, people singing, etc. What are the things you think ______________ most like to listen to?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Response to Probe Questions:

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
3. Some children really enjoy different smells such as perfume, flowers, coffee, pine trees, etc. What are the things you think most like to smell?
______________________________________________________________________________
______________________________________________________________________________
Response to Probe Questions:
______________________________________________________________________________
______________________________________________________________________________

4. Some children really enjoy certain food or snacks such as ice cream, pizza, juice, graham crackers, cookies, McDonald’s hamburgers, etc. What are the things you think most like to eat?
______________________________________________________________________________
______________________________________________________________________________
Response to Probe Questions:
______________________________________________________________________________
______________________________________________________________________________

5. Some children really enjoy physical play or movement such as being tickled, wrestling, running, dancing, swinging, being pulled on a scooter board, etc. What are the activities of this kind that you think most enjoys?
______________________________________________________________________________
______________________________________________________________________________
Response to Probe Questions:
______________________________________________________________________________
______________________________________________________________________________

6. Some children really enjoy touching things of different temperatures, cold things like snow or an ice pack, or warm things like a hand warmer or a cup containing hot tea or coffee. What are the activities of this kind that you think most enjoys?
______________________________________________________________________________
______________________________________________________________________________
7. Some children really enjoy feeling different sensations such as splashing water in a sink, a vibrator against the skin or the feel of air blown at the face from a fan. What are the activities of this kind that you think __________ most enjoys?

______________________________________________________________________________
______________________________________________________________________________

Response to Probe Questions:
______________________________________________________________________________
______________________________________________________________________________

8. Some children really enjoy it when others give them attention such as a hug, a pat on the back, clapping, saying “Good job”, etc. What forms of attention do you think __________ most enjoys?

______________________________________________________________________________
______________________________________________________________________________

Response to Probe Questions:
______________________________________________________________________________
______________________________________________________________________________

9. Some children really enjoy certain toys or object such as puzzles, toy cars, balloons, comic books, flashlights, bubbles, etc. What are ___________ favorite toys or objects?

______________________________________________________________________________
______________________________________________________________________________

Response to Probe Questions:
______________________________________________________________________________
______________________________________________________________________________
10. What are some other items or activities that ___________ most enjoys?

____________________________________________________________________________
____________________________________________________________________________

Response to Probe Questions:
____________________________________________________________________________
____________________________________________________________________________

After completion of the survey, select all the stimuli which could be presented or withdrawn contingent on target behaviors during a session or classroom activity (e.g., a toy could be presented or withdrawn, a walk in park could not). Then have the parents select the top 16 stimuli and rank order them. List the ranked stimuli below.

1._________________________ 9._________________________
2._________________________ 10._________________________
3._________________________ 11._________________________
4._________________________ 12._________________________
5._________________________ 13._________________________
6._________________________ 14._________________________
7._________________________ 15._________________________
8._________________________ 16._________________________

Are there any items (from the above list) that you would not want to use?
____________________________________________________________________________
____________________________________________________________________________

Are there any items (from the above list) that you would not want to limit your child’s access?
____________________________________________________________________________
____________________________________________________________________________
Appendix B

EXAMPLES OF OPERATIONAL DEFINITIONS FOR DATA COLLECTION
(These should be individualized for each child.)

**Approach Responses** – Defined generally as the child moving toward the stimulus, with any part of the body, within 5 s of stimulus presentation, and may include at least one of the following responses directed at one of the stimuli presented:

- **Reach** - Moving hand toward object such that the hand moves at least 6 inches from its previous position and moves toward the object
- **Positive Vocalizations** - Asking for the object, stating name of object in conjunction with leaning toward or reaching for object, laughing
- **Smile** - Smiling within 5 seconds upon presentation while looking at object for 3s
- **Lean** - Leaning toward object at least 4-5 inches from original position
- **Eye Contact** - Eyes looking at the object for at least 3 continuous seconds

**Consummatory Responses** – Defined generally as interaction with the stimulus, moving towards the stimulus, consuming the stimulus (for edibles and tangible stimuli), or engaging in the activity (when the stimulus was an activity, such as playing catch with the therapist). This includes any attempt to manipulate, “experience” or consume the stimulus in a manner in which it is intended. Consumption may be defined differently for different types of stimuli:

- **Visual stimuli** – 3 continuous seconds of eye contact
- **Edible stimuli** – eating object without spitting or taking any portion out of mouth (does not include edibles which leave the mouth due to drooling)
- **Auditory stimuli** – Leaning toward music for 3 continuous seconds, rocking, or clapping to the music; vocalizing, humming or singing for 3 continuous seconds
- **Vestibular stimuli** – Sitting on the object and either attempting to rock or swing for 3 continuous seconds
- **Olfactory stimuli** – Being within 6 inches of object for 3 continuous seconds
- **Tactile stimuli** – Tolerating object for 3 seconds (leaning toward, holding or grasping, putting hand in on object). Holding or grasping object for 3s.
- **Social stimuli** - Tolerating or allowing the therapist to provide the social stimulus without pushing, pulling away, or attempting to aggress for 3s

**Avoidance Responses** - Includes actively pushing/throwing away objects or moves body away within 3s of presentation, or negative vocalizations such as crying, screaming, or saying “get it away” or “no”. May also include aggression, disruption, or self-injury, defined individually for each child.

**No Response** - Exhibiting no reaction to the stimuli within 5s of presentation.
Appendix C

SINGLE-STIMULUS (SS) PREFERENCE ASSESSMENT

**PROCEDURE:** 6-16 stimuli are presented singly in a randomized order until all stimuli are presented. The procedure is repeated 3 times.

1. Prior to the assessment, allow the child to sample each item for 30 seconds.
2. Randomly select one of the stimuli, and place it in front of the child on a table or chair (do not hand it to the child – but if he/she takes from you, then allow him/her to do so).
3. If the child approaches the stimulus, allow the child access for approximately 30 s for non-edible items or one bite-size piece of each edible item.
4. Remove the stimulus from the child and present the next stimulus.
5. Continue until all stimuli have been presented.

**DATA COLLECTION:** For each stimulus, collect data on the following: approach responses, consummatory responses, avoidance responses, and no response.

**DATA ANALYSIS:** For each stimulus, calculate the percentage of trials approached and percentage of trials consumed, averaged across 3 sessions. Generally, stimuli approached and consumed over 80% of trials are considered high-preference stimuli.
Appendix D

PAIRED-STIMULUS (PS) PREFERENCE ASSESSMENT

PROCEDURE: 6-16 stimuli are presented in pairs until each stimulus has been presented with every other stimulus.

1. Prior to the assessment, allow the child to sample each non-edible item for 30 s and one bite-size piece of each edible item.

2. Hold two stimuli in front of the child so that each stimulus is approximately 2 feet from the child and 2 feet from the other stimulus.

3. If the child approaches one of the stimuli within 5 seconds, immediately give that stimulus to the child and remove the other stimulus from sight. Allow the child access to the stimulus he or she chose for approximately 30 s for non-edible items or one bite-size piece of each edible item.

4. Remove the stimulus from the child and present the next stimulus. Continue until all stimuli have been presented. Start again at Step 2 for each pair of stimuli.

5. If the patient does not approach either stimulus within 5 seconds, remove both stimuli. Represent the stimuli following steps 2 & 3.

6. If the patient avoids either stimulus, remove the item from in front of the patient for 5 seconds and represent following steps 2 & 3.

DATA COLLECTION: For each stimulus, collect data on the following: approach responses, consummatory responses, avoidance responses, and no response.

DATA ANALYSIS: For each stimulus, calculate the percentage of trials approached and percentage of trials consumed. Generally, stimuli approached and consumed over 80% of trials are considered high-preference stimuli.
Appendix E

MULTIPLE STIMULUS WITHOUT REPLACEMENT (MWSO) PREFERENCE ASSESSMENT

PROCEDURE: 6-10 stimuli are presented in an array until each stimulus has been selected. The procedure is repeated 3 times.

1. Prior to the assessment, allow the child to sample each non-edible item for 30 s and one bite-size piece of each edible item.

2. Present the stimuli in a linear array approximately 2 feet from the child, and instruct the child to pick one.

3. If the child approaches one of the stimuli within 5 seconds, allow the child access to the stimulus he or she chose for approximately 30 s for non-edible items or one bite-size piece of each edible item. Block the child from accessing additional items during that particular trial.

4. Remove the stimulus from the child, and remove it from the array. This stimulus will not be made available in subsequent trials. Prior to the next trial, the sequencing of the remaining items will be rotated by taking the item at the left end of the line and moving it to the right end, then shifting the other items so that they will again be equally spaced on the table.

5. Start the second trial at Step 2.

6. Continue until all items are selected or until the child makes no selection within 30 seconds from the beginning of the trial.

7. If the patient does not approach either stimulus within 5 seconds, remove both stimuli. Represent the stimuli following steps 2 & 3.

8. If the patient avoids either stimulus, remove the item from in front of the patient for 5 seconds and represent following steps 2 & 3.

DATA COLLECTION: For each trial, record which stimulus was selected. Data may also be collected on the following: consummatory responses, avoidance responses, and no response.

DATA ANALYSIS: For each stimulus, calculate the percentage of trials selected, averaged across the number of repetitions.
Appendix F

FREE-OPERANT (FO) PREFERENCE ASSESSMENT

PROCEDURE: Session is 10 minutes in length. 6-10 non-edible stimuli are included and data are collected on the duration of engagement with each stimulus.

1. Prior to the assessment, allow the child to sample each item for 30 seconds.
2. Place all items on a table or on the floor around the child. Instruct the child that he or she can play with any item at any time.

DATA COLLECTION: Collect data in 10-second partial intervals. Score each item the child engages with appropriately (approach or consummatory responses) at any time during the 10-second interval. More than one item may be recorded during a given 10-second interval.

DATA ANALYSIS: For each stimulus, calculate the percentage of intervals with engagement. Stimuli with higher levels of engagement are considered more preferred.
References


Disorders, 3, 115-128.


