Thinking Outside the Box: Solving Problems With Structured Preference Assessments

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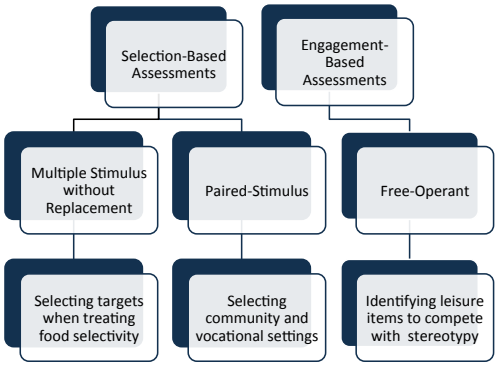


Questions to Consider

- When might we want to know an individual's preferences?
- How do we commonly find out what a person's preferences are?
- Are there situations in which the ways we commonly find out a client's preferences might be inadequate or inefficient?

Methods of Assessing Preference

- Indirect methods
  - Purpose: Identifying stimuli for inclusion in a preference assessment (Fisher et al., 1996)
- Structured preference assessments
  - Purpose: Identify a hierarchy of preferred items (Hagopian, Long, & Rush, 2004)
- Reinforcer assessments
  - Purpose: Directly assess whether items function as reinforcers (Hagopian, Long, & Rush, 2004)

The Reinforcer Assessment for Individuals with Severe Disabilities (RAISD)

CHILD'S NAME: _____ DATE: _____

NAME OF REPORTER: _____

The purpose of this structured interview is to get as much specific information as possible form the parent (or caregiver) as to what they believe would be useful reinforcers for the client. Therefore, this survey asks parents questions about categories of stimuli (e.g., visual, auditory, etc.). After the parent has generated a list of preferred stimuli, ask additional probe questions to get more specific information on his/her preferences 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 _____'s preference 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 sounds such as listening to music, car sounds, whistles, beeps, sirens, clapping, people singing, etc. What are the things you think _____ most likes to listen to?

Structured Preference Assessments

- Systematic presentation of stimuli
- Types of assessments (Hagopian, Long, & Rush, 2004)
  - Selection/approach-based
  - Engagement/duration-based

Selection/Approach-Based Assessments

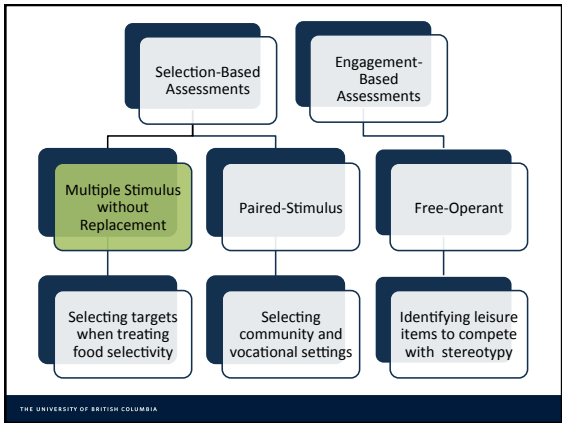
- Stimuli are presented in pairs or an array
- Approach/Selection is measured
- Examples
  - Multiple stimulus (with or without replacement)
  - Paired-stimulus
  - Single-stimulus

Engagement/Duration-Based Assessments

- A single item, or multiple items is presented
- Duration of engagement is measured
- Examples
  - Free operant
  - Single stimulus engagement

Today's Focus

- Multiple stimulus without replacement preference assessment
  - Deleon & Iwata, 1996
- Paired-stimulus preference assessment
  - Fisher, et. al., 1992
- Free-operant stimulus preference assessment
  - Roane, Vollmer, Ringdahl, & Marcus, 1998



Multiple Stimulus Without Replacement (MSWO)

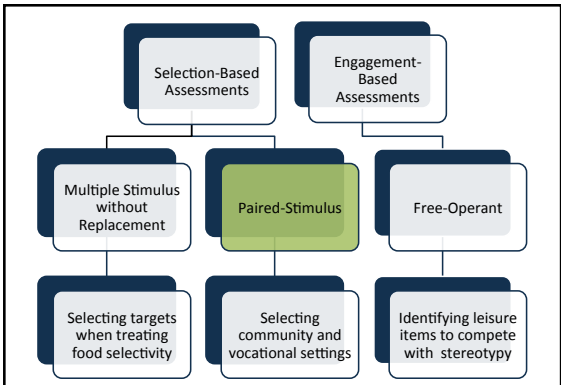
- 6 to 8 items assessed
- An array of 6 to 8 items is presented
- Individual asked to choose one item
- Individual selects and consumes item
- Items rearranged, new trial presented
- This process continues until
  - all items have been selected
  - 30 s passes with no selection

MSWO (Continued)

- Full MSWO (Deleon & Iwata, 1996)
  - Five array presentations
- Brief MSWO (Carr, Nicholson, & Higbee, 2000)
  - Three array presentations

MSWO - Considerations

- Relatively brief
- Likely to produce a hierarchy of preferred items
- Not appropriate when the client has a history of tangibly maintained problem behaviour
- Positional bias
- Limited to smaller and fewer number of items



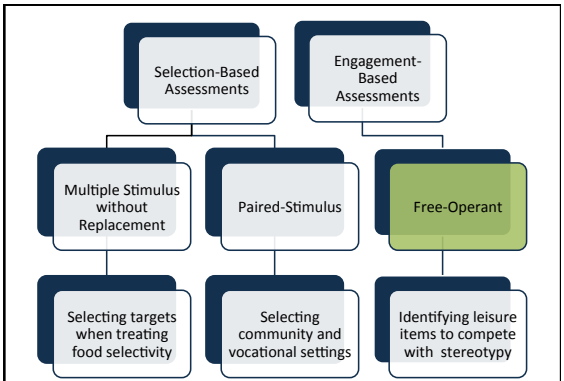
Paired-Stimulus Assessment

- 8 to 16 items assessed
- Array of two times presented at a time
- Individual asked to choose one item
- Individual consumes or plays with the item
- A new trial is presented
- This process continues until each item has been paired with each other item one time

Source: Vanderbuilt EPIP
https://www.youtube.com/watch?v=CnBraS9rmz4&list=PLXFqaanf1VpTh49MU0w8q28Wpi8bNLAsB&index=5

Paired-Stimulus - Considerations

- Useful when assessing larger items, activities
- Can assess a large number of items
- Likely to produce a hierarchy of preferred items
- May aide in rapport-building
- Potential for positional bias
- Can be time-consuming



Free-Operant Stimulus Preference Assessment (FOSPA)

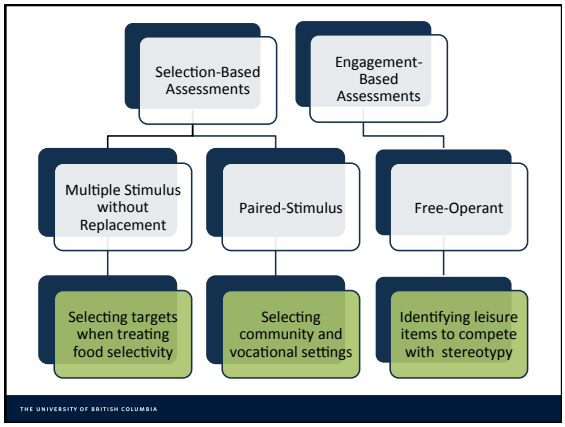
- 10 to 11 items assessed
- All items presented at the same time
- Free access to all items
- Individual engages with items according to preference
- Continues until the session time is complete

FOSPA - Considerations

- Preferred items are not repeatedly taken away
- Efficient
- Accommodates larger items
- Competing items assessment
- Less likely to produce a hierarchy
- Participant may exclusively manipulate one item

Common Uses of Structured Preference Assessments

- Identify reinforcers for teaching new skills
- Identify reinforcers for
  - reducing problem behaviours
  - increasing alternative or desired behaviours
- Less common uses of structured preference assessments
  - Identifying instructional targets
  - Choosing community and vocational settings
  - Others?

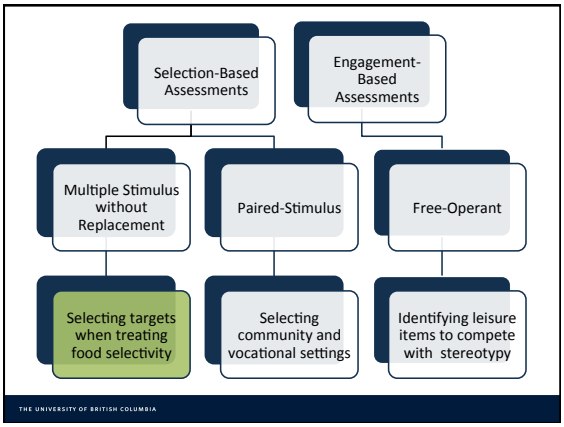


Questions to Consider

- When might we want to know an individual's preferences?
- How do we commonly find out what a person's preferences are?
- Are there situations in which the ways we commonly find out a client's preferences might be inadequate or inefficient?

Case Presentations

- Goal: Increase client self-advocacy with treatment selection
  - Selecting foods for expanding food repertoires
  - Selecting community and vocational settings
  - Selecting preferred items for use in treatment



Selecting Targets When Treating Food Selectivity

- Teenage male with ASD
- Residing in an ABA teaching home
- Limited food repertoires
  - Limited vegetable consumption, limited proteins and healthy snacks
  - Accepted a 'taste' of non-preferred foods
  - Disclaimer: Food selectivity, NOT food refusal
- Goal: To increase variety of vegetables consumed on a daily/weekly basis

Selecting Targets When Treating Food Selectivity

- Considerations when selecting targets?
  - Caregiver preference, availability of foods
  - 'Best guess' about which targets will be easiest to teach
- Why use a structured preference assessment?
  - Client preference informs sequence of targets
  - Start with the most preferred foods

Solution: MSWO

- Multiple stimulus without replacement
- MSWOs conducted to select targets when
  - Increasing variety of vegetables
  - Increasing variety of healthy proteins
  - Increasing healthy snack options
- MSWOs run by the program supervisor of the teaching home
  - Masters student in applied behavior analysis or a related discipline

MSWO Preference Assessment Data Form

Student _____ Tutor: _____

IOA: Y / N

Stimuli:

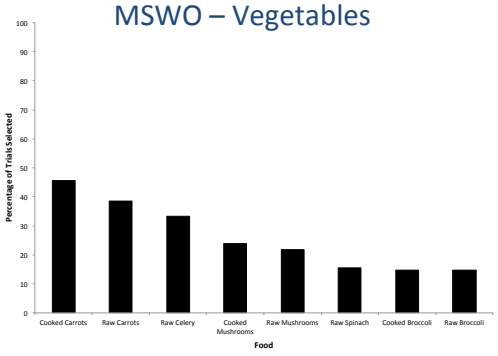
1 = _____ Selected on _____out of _____ trials presented.
2 = _____ Selected on _____out of _____ trials presented.
3 = _____ Selected on _____out of _____ trials presented.
4 = _____ Selected on _____out of _____ trials presented.
5 = _____ Selected on _____out of _____ trials presented.
6 = _____ Selected on _____out of _____ trials presented.
7 = _____ Selected on _____out of _____ trials presented.
8 = _____ Selected on _____out of _____ trials presented.

Session 1

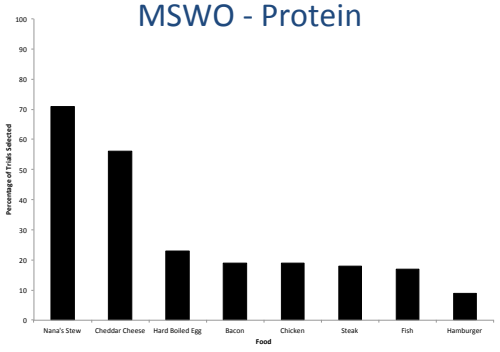
Date: _____ Time: _____

Trial #	Stimuli							
1								
2								
3								
4								
5								
6								
7								
8								

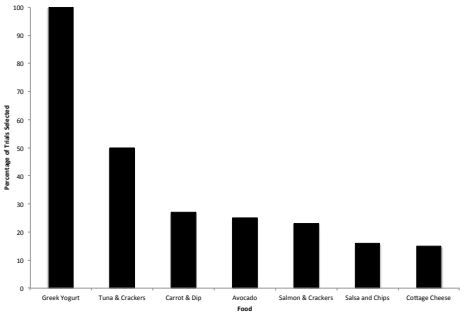
MSWO – Vegetables



MSWO - Protein



MSWO – Healthy Snacks

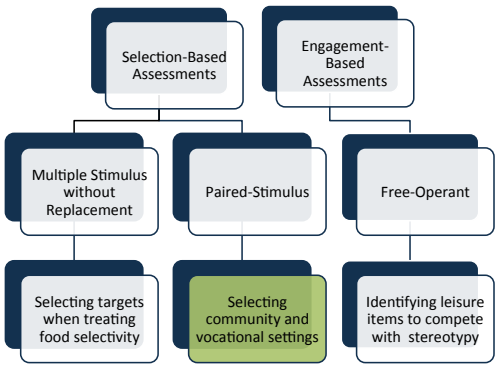


Treatment Decisions

- Started with most preferred foods
  - i.e., the 'least disliked' foods
- Systematically introduced foods in a hierarchy
- Facilitative effects of early success with higher preference items?
  - An empirical question!

Considerations

- Prerequisite skills
  - Can sit and attend to a task for short durations
  - Can follow simple directions (e.g., "Choose one")
  - Can choose from an array of options
- Individual must be willing to 'taste' at least some items in the array



Selecting Community and Vocational Settings

- Community and pre-vocational settings
- Allocation of leisure time
- Where to focus instruction with respect to
  - Increasing independence, problem solving skills
- Common approaches to selecting community settings
- Identifying preferred community settings

Solution: Video-Based Paired-Stimulus Assessment

- Videos or pictures – an empirical question
  - Videos may provide more salient stimuli
- Is immediate access after selection necessary?
  - Clark, Donaldson & Kahng (2015)

Video-Based Paired-Stimulus Assessment

- A sample of nine community settings assess
  - Future plan: To assess a larger number
- Short video clips collected of client in each setting
- Powerpoint presentation created
  - Each video paired with each other video one time

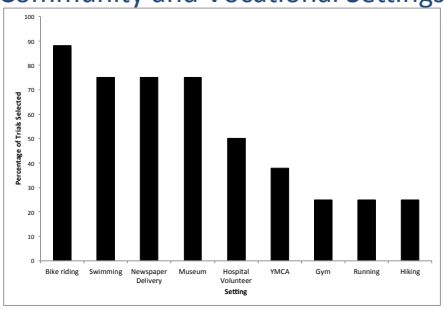
Video-Based Paired Choice Preference Assessment
Date:
Client Initials:
Community locations preference assessment

Trial	L	R	Notes
1	hike	gym	
2	museum	hospital volunteer	
3	hike	YMCA	
4	newspaper delivery	hospital volunteer	
5	YMCA	gym	
6	hike	swimming	
7	newspaper delivery	museum	
8	hike	bike riding	
9	bike riding	hospital volunteer	
10	newspaper delivery	hike	
11	bike riding	museum	
12	running	gym	
13	museum	hike	
14	bike riding	newspaper delivery	
15	hospital volunteer	hike	
16	swimming	hospital volunteer	
17	gym	YMCA	
18	swimming	museum	

Video-based Paired-Stimulus Assessment

- Slide presentation
  - Video 1 played, video 2 played
  - Both played simultaneously
  - Individual asked to 'pick one'
- Client pointed to video
- Next slide presented
- Continued until assessment complete
- Broken into 2 to 3 short sessions

Video-based Assessment of Community and Vocational Settings

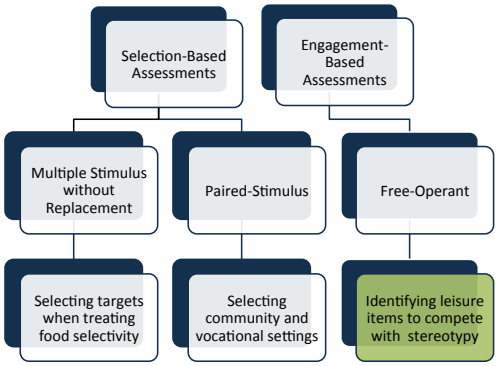


Treatment Decisions

- Most preferred setting/activity: Bike riding
  - Safety concerns
  - Logistics (driving to enclosed trail)
  - Increase access, investigate other safe options
- Anecdotal prediction: YMCA would be the most preferred pre-vocational setting
  - Actual: Newspaper delivery, hospital, YMCA
  - Common characteristics

Considerations

- Number of settings/activities
  - Consider time to prepare videos, present trials
- Videos
  - Logistics
  - Content
- Video-to-picture matching
  - Pictures may be more appropriate if a video-to-picture matching repertoire is not present



Finding Items to Compete With Engagement in Stereotypy

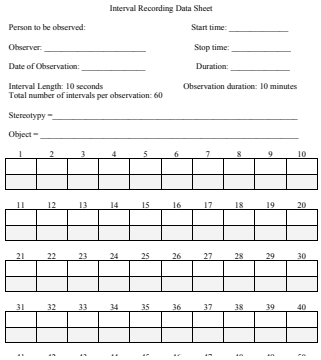
- Stereotypy – repetitive, nonfunctional movements or vocalizations
- Many interventions that decrease stereotypy
  - Time intensive, continuous monitoring (RIRD, Differential reinforcement procedures)
- Noncontingent reinforcement (NCR)
  - Continuous access to items correlated with low levels of stereotypy

Noncontingent Reinforcement

- Benefits
  - Substitution- addresses function
  - Simple to employ
  - Continuous monitoring not required
  - Prerequisite skills are minimal
- Drawbacks
  - NCR may interfere with other tasks or activities
  - Procedures for identifying competing items can be time consuming

Competing Items Assessment

- Purpose - Find stimuli that are both preferred and are associated with low levels of stereotypy
- Free-operant stimulus preference assessment
- Select stimuli that produce a variety of sensory consequences
- Measure occurrence of stereotypy and object engagement


Interval Recording Data Sheet

Person to be observed: Start time: _____

Observer: _____ Stop time: _____

Date of Observation: _____ Duration: _____

Interval Length: 10 seconds
Total number of intervals per observation: 60
Observation duration: 10 minutes

Stereotypy = _____

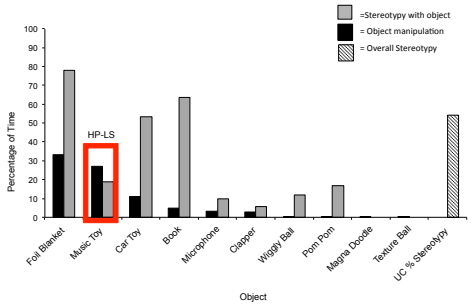
Object = _____

1	2	3	4	5	6	7	8	9	10

11	12	13	14	15	16	17	18	19	20

21	22	23	24	25	26	27	28	29	30

31	32	33	34	35	36	37	38	39	40



Treatment Decisions

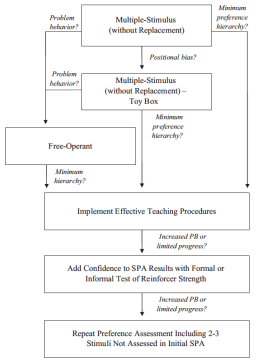
- High preference, low stereotypy items
  - Provided noncontingently to reduce stereotypy
  - E.g., Listening to music while parents prepare dinner
- High stereotypy items could be avoided
  - Or, reserved to be used as powerful reinforcers
- Toy play and leisure activity instruction
  - Selecting targets for instruction
  - Evaluating progress (pre-post probes)

Other Competing Items Assessments

- Single stimulus duration-based assessments
  - Ahearn, Clark, DeBar, & Florentino, 2005
  - Piazza et al., 2000
- Paired-stimulus assessment followed by single stimulus engagement
  - Groskreutz, Groskreutz, & Higbee, 2011

Selecting Preference Assessments

- Multiple procedures to assess preference
- Indications and contraindications for each assessment
- Practitioner model for identifying preferred stimuli with individuals with autism spectrum disorders
  - Karsten, Carr, & Lepper (2011)



Karsten, Carr, & Lepper (2011)

Questions to Consider

- When might we want to know an individual's preferences?
- How do we commonly find out what a person's preferences are?
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Conclusion

- Structured preference assessments can be used to
  - Selecting preferred items for teaching new skills and reducing problem behaviour
  - Inform treatment decisions
- Overarching goal - Use structured preference assessments to obtain client input into
    - treatment goals and intervention strategies

Resources

- Data collection forms
  - Email me if you'd like the word/excel files
- WMICH Practitioner resources – Stimulus Preference Assessments:
  - https://wmich.edu/autism/stimulus-preference
  - Dr. DeLeon
- CIRCA Presentation
  - Past events: Dr. Laura Grow's presentation on stimulus preference assessments

Thank you!

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References

- Ahearn, W. H., Clark, K. M., DeBar, R., & Florentino, C. (2005). On the role of preference in response competition. *Journal of Applied Behavior Analysis*, *38*, 247-250.
- Broadhead, M. T., Al-Dubayan, M. N., Mates, M., Abel, E. A., & Brouwers, L. (2015). An evaluation of a brief video-based multiple stimulus without replacement preference assessment. *Behavior Analysis in Practice.*
- Carr, J. E., Nicholson, A. C., & Higbee, T. S., 2000. Evaluation of a brief multiple stimulusp reference assessment in a naturalistic context. *Journal of Applied Behavior Analysis, 33,* 353-357.
- Deleon, Iser G. & Iwata, Brian A., 1996. Evaluation of a multiple-stimulus presentation format for assessing reinforcer preferences. *Journal of Applied Behavior analysis, 29 (4),* 519-533
- Fisher, W. W. Piazza, C. C., Bowman, L. G., & Amari, A. (1996). Integrating caregiver report with a systematic choice assessment. *American Journal on Mental Retardation, 101,* 15-25

References, Continued

- Fisher, W. C., Piazza, C. C., Bowman, L. G., Hagopian, L. P., Owens, J. C., & Slevin, I. (1992). A comparison of two approaches for identifying reinforcers for persons with severe and profound disabilities. *Journal of Applied Behavior Analysis, 25,* 491-498.
- Groskreutz, M. P., Groskreutz, N. C., & Higbee, T. S. (2011). On the role of competition and preference in the assessment and treatment of automatically maintained vocal stereotypy. *Journal of Applied Behavior Analysis*, *44*, 211–215.
- Hagopian, L. P., Long, E. S., & Rush, K. S. (2004). Preference Assessment Procedures for Individuals with Developmental Disabilities. *Behavior Modification, 28,* 668-677.
- Karsten, A. M., Carr, J. E., & Lepper, T. L. (2011). Description of a practitioner model for identifying preferred stimuli with individuals with autism spectrum disorders. *Behavior Modification, 35m* 347-369.
- Miltenberger, R. G., Rapp, J. T.,. & Long, E. S. (1999). A low-tech method for conducting real-time recording. *Journal of Applied Behavior Analysis, 32,* 119-120.

References, Continued

- Morrison, K., & Rosales-Ruiz, Jesus (1997). The effect of object preferences on task performance and stereotypy in a child with autism. *Research in Developmental Disabilities, 18,* 127-137.
- Piazza, C. C., Adelinis, J. D., Hanley, G. P., Goh, H. & Delia, M. D. (2000). An evaluation of the effects of matched stimuli on behaviors maintained by automatic reinforcement. *Journal of Applied Behavior Analysis, 33*, 13-27.
- Rapp, J. T. (2004). Effects of prior access and environmental enrichment on stereotypy. *Behavioral Interventions*, *19*, 287-295.
- Rapp, J. T. (2005). Some effects of audio and visual stimulation on multiple forms of stereotypy. *Behavioral Interventions, 20,* 255-272.
- Ringdahl, J. E., Vollmer, T. R., Marcus, B. A., & Roane, H. S. (1997). An analogue evaluation of environmental enrichment: The role of stimulus preference. *Journal of Applied Behavior Analysis,* 30, 203-216.
- Van Camp, C. M. , Lerman, D.C., Kelly, M. E., Roane, H. S., Contrucci, S. A., & Vorndran, C. M. (2000). Further analysis of idiosyncratic antecedent influences during the assessment and treatment of problem behavior. *Journal of Applied Behavior Analysis, 33*, 207-221.