Using Preference and Reinforcer Assessments in Clinic, School, and Home Settings

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Reinforcer Identification

- Reinforcers are identified for:
  - Skill acquisition programs (e.g., communication)
  - Behaviour reduction programs (e.g., environmental enrichment)
- Common types of programmed reinforcers
  - Toys
  - Edibles
  - Activities
  - Praise

Methods Used to Identify Reinforcers

- Indirect assessments
  - RAISD (Fisher, Piazza, Bowman, & Amari, 1996)
  - The assessment is not sufficient but should be used with other assessments
- Preference assessments
  - The purpose is to identify hierarchy of preferred items
  - The items may or may not function as reinforcers for behaviour
- Reinforcer assessments
  - The purpose is to determine if the items function as reinforcers
  - Typically includes items identified from a preference assessment

Preference Assessments in Practice

- Approximately 65% of early intervention programs use daily preference assessments with the clients (Love, Carr, Almason, & Petursdottir, 2009)
- Research shows that preferences shift over time (Hanley, Iwata, & Roscoe, 2006)
- Daily preference assessments identify reinforcers more reliably than one-time assessments (DeLeon et al., 2001)

Practical Considerations

- **Identifying reinforcers can be difficult:**
  - Individuals might have limited verbal repertoires
  - Individuals might not be naturally exposed to a variety of reinforcers
  - Preferences are idiosyncratic
  - Preferences change over time
  - Mixing primary and conditioned reinforcers can confound the results

Types of Preference Assessments

- Approach-based assessments
  - Single-stimulus assessment (Pace et al., 1985)
  - Multiple stimulus with/without replacement (DeLeon & Iwata, 1996)
  - Paired-choice assessment (Fisher et al., 1992)
- Duration-based assessments
  - Single stimulus engagement procedure (Hagopian, Rush, Lewin, & Long, 2001)
  - Free-operant assessment (Roane et al., 1998)

Single-Stimulus Preference Assessment

- First systematic assessment based on direct observation (Pace et al., 1985)
- Present the individual with items one at a time
- Record how the individual interacts with each item
- Rank the items based on the percentage of trials in which the items was consumed
- Considerations
  - Individuals may select items indiscriminately
  - Assessment may be useful for individuals that cannot select among more than one option

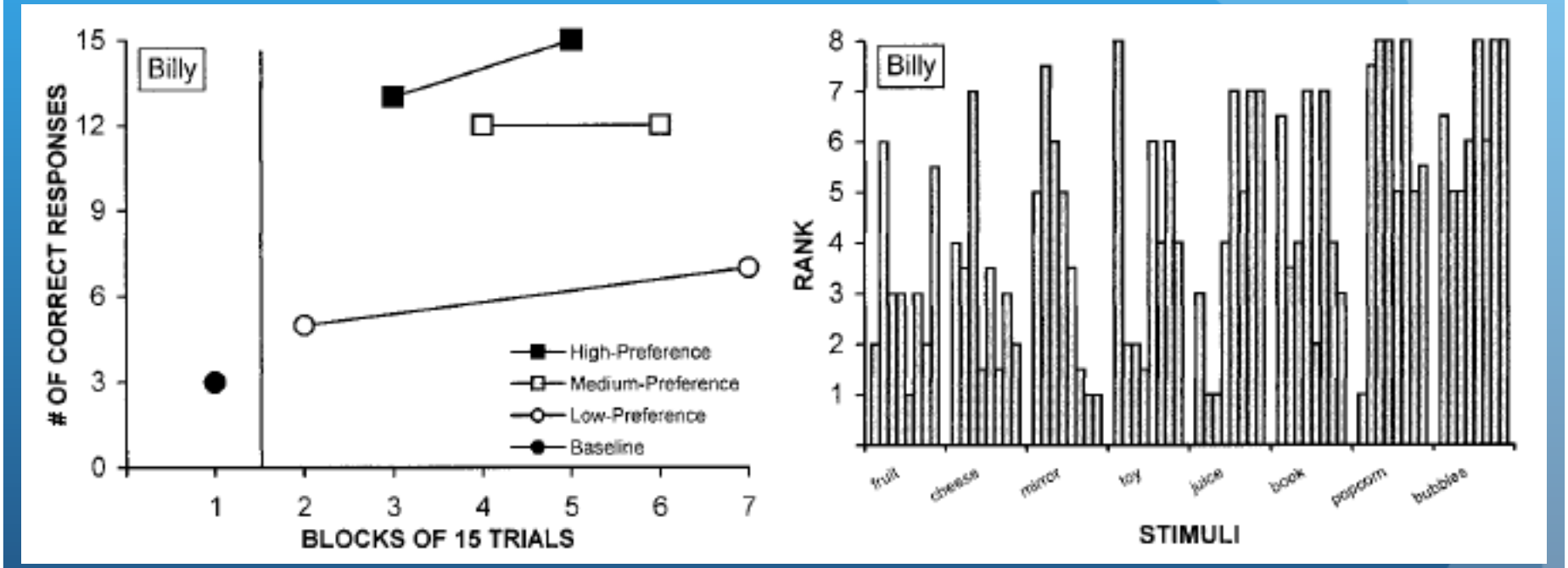
Multiple Stimulus Assessments

- Client is presented with multiple (e.g., 8) stimuli and allowed to select one at a time
  - Several arrays can be implemented
  - With replacement (MSW) – chosen item is replaced in the array
  - Without replacement (MSWO) – chosen item is not replaced (DeLeon & Iwata, 1996)
    - About as effective with the paired-stimulus method, but briefer
- Use when preference for multiple stimuli needs to be assessed quickly

Multiple Stimulus Assessments

- Brief MSWO (Carr, Nicolson, & Higbee, 2001; Paramore & Higbee, 2005)
  - Utilized three arrays instead of the five used in DeLeon & Iwata, 1996
  - Used the assessment in natural contexts with children and adolescents
  - May be more practical in educational settings where extended assessments are not feasible

Carr, Nicolson, & Higbee, 2001



Paired-choice Preference Assessment

- The individual is presented with pairs of items
- Counterbalance the presentation of the items to evaluate side biases
- Record the selected item for each trial
- Rank based on the percentage of trials in which the item was selected
- Considerations
  - Lengthy
  - Individual must be able to select from a pair of items

If you have 5 stimuli:

(1) S1 – S2

(2) S3 – S4

(3) S5 – S1

(4) S2 – S3

(5) S1 - S3

(6) S4 – S1

(7) S3 – S5

(8) S2 – S4

(9) S4 – S5

(10)S5 – S2

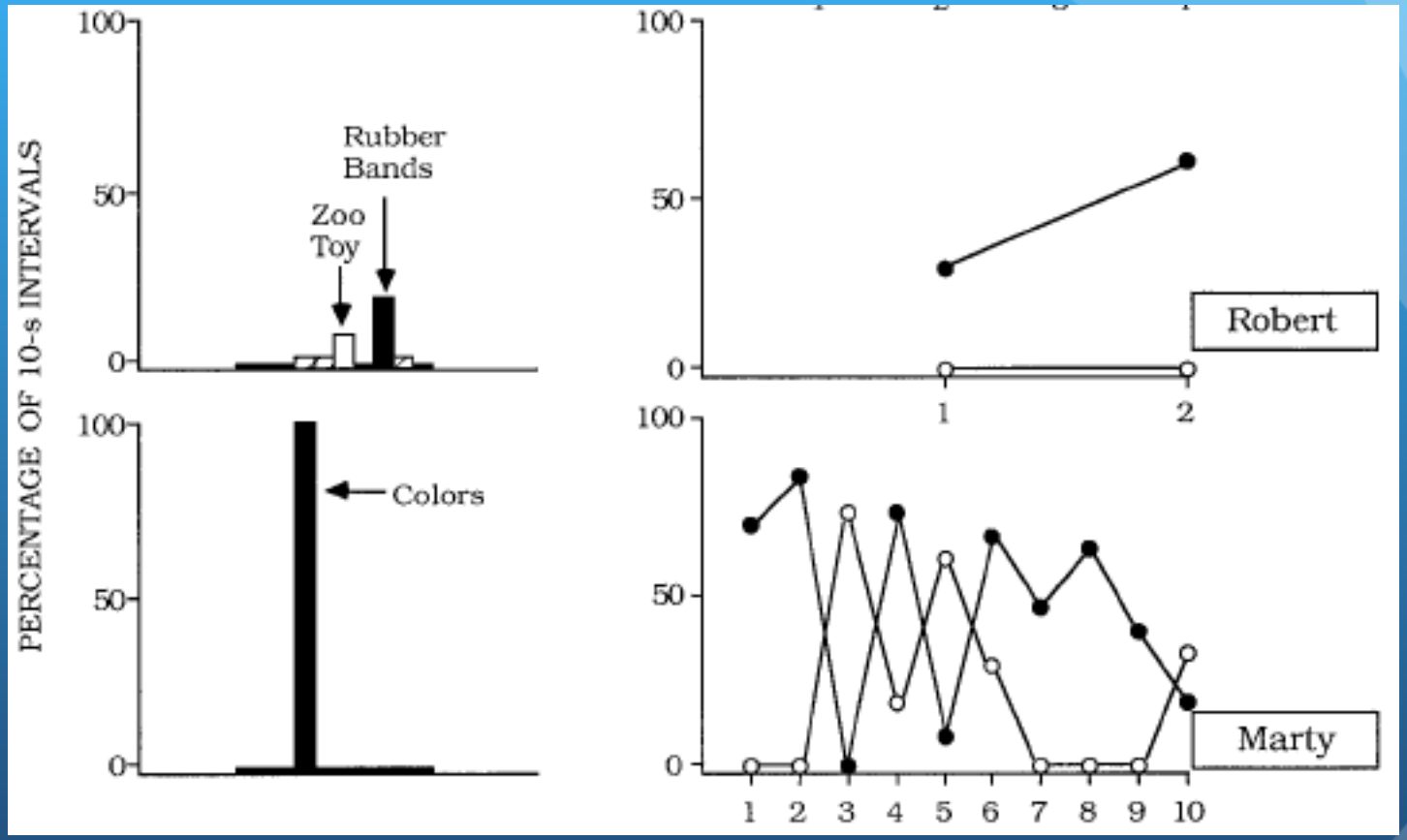
Free Operant Assessment

- Based on study conducted by Roane and colleagues (1998)
- Present the individual with an array of items
- Allow the individuals to freely interact with any of the items for a period of time
- Record the duration of engagement for each item
- Rank the items based on the percentage of engagement

Free Operant Assessment

- Considerations
  - Useful when a few high-preference stimuli need to be quickly assessed or when concerned about problem behavior
  - Might only identify 1 or 2 items
  - Can also record problem behavior concurrently with item interaction
    - Competing items assessment

Roane et al. (1998)



Single-Stimulus Engagement Assessment

- Present the individual with items one at a time
- Record how the duration of engagement with each item
- Rank the items based on the duration (or percentage) of engagement
- Considerations
  - Useful for individuals that cannot select among more than one option
  - Useful for activities/items that are not easily presented in a choice/ table-top fashion

Hagopian, Rush, Lewin, & Long, 2001)

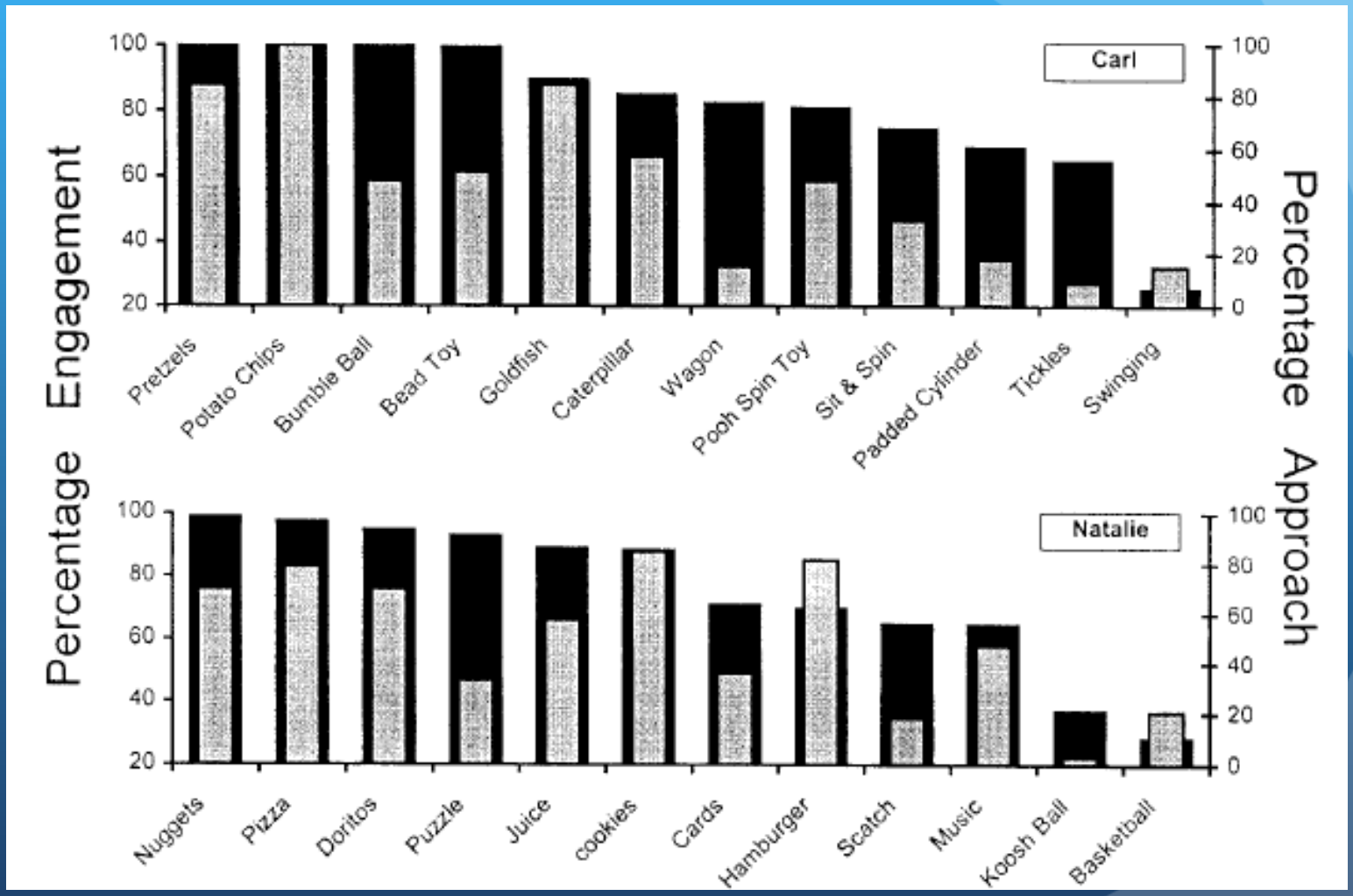


Table 1. Assets and Barriers Associated With Stimulus Preference Assessments

Method	Assets	Potential barriers
MSWO	Likely to identify multiple reinforcers in minimal time	Positional bias, limited to smaller tabletop items and fewer items; requires more time than FO assessment
PS	Likely to identify multiple reinforcers, accommodates larger tabletop items and a greater number of items	Positional bias, requires more time than MSWO and FO assessments
SS	Likely to identify multiple reinforcers, accommodates larger items and activities	False positive results, less likely to identify relative preferences than MSWO and PS methods except when duration of engagement is also measured
FO	Less likely to evoke problem behavior, requires minimal time, accommodates larger items and activities	Less likely to identify multiple reinforcers than other methods except when assessment is repeated without most preferred item

Note: MSWO = multiple stimulus without replacement; PS = paired stimulus; SS = single stimulus; FO = free operant.

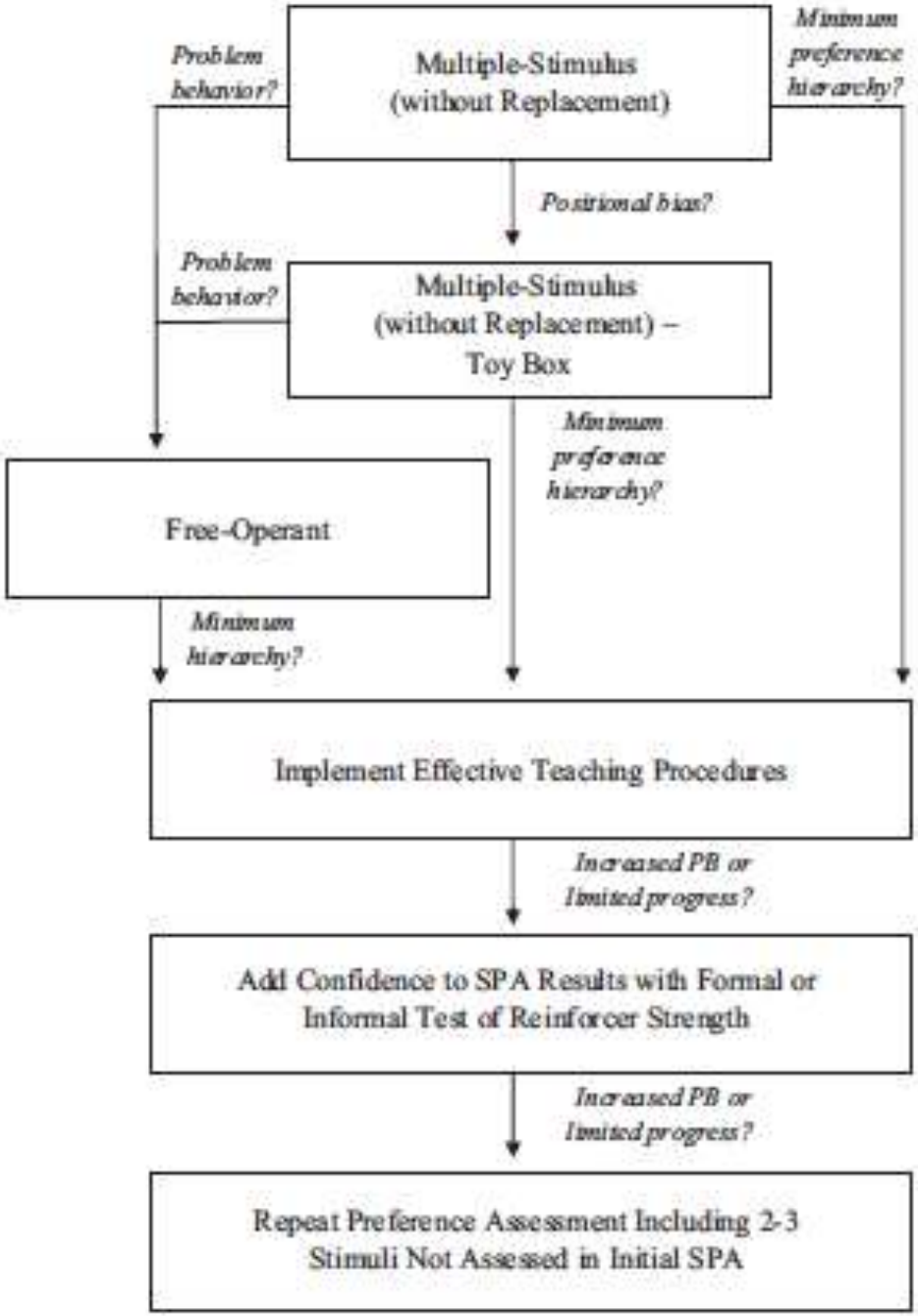
**Table is taken from Karsten, Carr, Lepper (2011)

Common Problems and Possible Solutions

- Large items/activities
  - Pictures of the items/activities
  - Verbal descriptions of the items/activities
  - Must arrange immediate access to the selected item/activity
- Individual has a positional bias
  - Paired-choice and MSWO can help identify a bias
  - Single-stimulus presentations circumvent the bias
  - Alternative presentations may reduce/avoid the bias

Developing a Model for Conducting Preference Assessments

- Karsten, Carr, & Lepper (2011)
  - Developed a practitioner model for conducting comprehensive preference assessments
  - Included a decision-making tree to assist practitioners with selecting appropriate assessments and addressing issues that might arise


Multiple-Stimulus
(without Replacement)
Problem behavior?
Minimum preference hierarchy?
Positional bias?
Multiple-Stimulus
(without Replacement) –
Toy Box
Problem behavior?
Minimum preference hierarchy?
Free-Operant
Minimum hierarchy?
Implement Effective Teaching Procedures
Increased PB or limited progress?
Add Confidence to SPA Results with Formal or Informal Test of Reinforcer Strength
Increased PB or limited progress?
Repeat Preference Assessment Including 2-3 Stimuli Not Assessed in Initial SPA

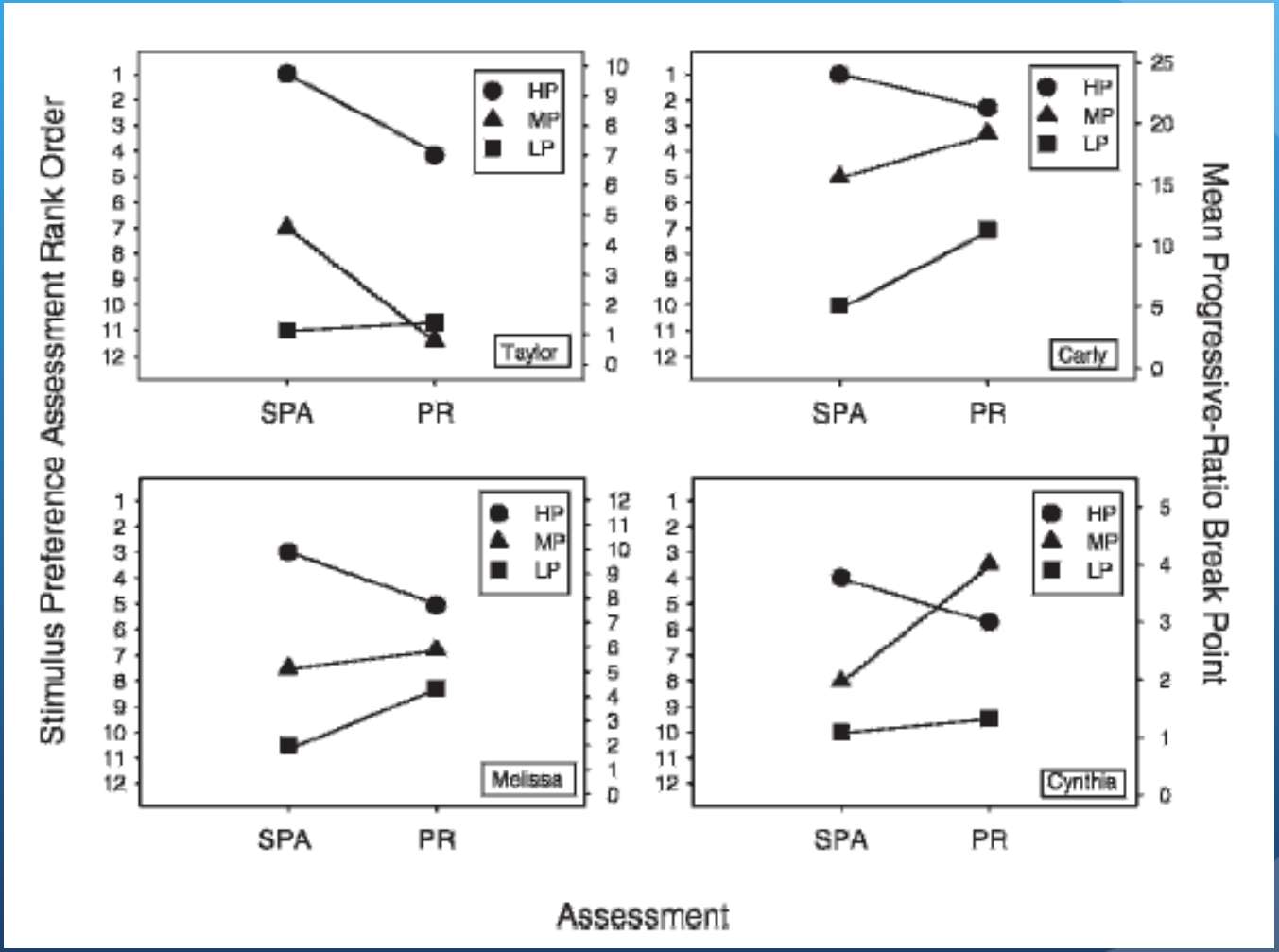
Reinforcer Assessments

- Published reinforcer assessments often include relatively simple tasks with dense schedules of reinforcement
- What about larger work requirements or more difficult tasks?
- Instructors might consider using progressive-ratio assessments to evaluate reinforcer strength

Progressive-ratio Analysis

- The schedule requirement to access reinforcers is increased within a single session
  - FR1, FR3, FR5, and so on
- Instructor collects data on the last schedule requirement completed by the learner (i.e., break point)
- Break points can serve as an index of reinforcer strength

DeLeon, Frank, Gregory, & Allman, 2009



Conclusions

- Direct observations of preference are more reliable than caregiver/teacher report
- Methods can and should be conducted frequently
- Avoid mixing categories of reinforcers (e.g., food and toys)
- Consider alternative formats
  - Pictorial
  - Verbal
  - Variations on the array presentation

Conclusions

- Conduct a comprehensive preference assessment initially
- Conduct brief assessments on a daily or hourly basis
  - Consider using 1-array MSWOs
  - Consider using brief free operant assessments